

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	229	oxonol\$6 and fuji	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:09
L2	78	(optical or laser) and l1	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:09

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	229	oxonol\$6 and fuji	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:09
L2	78	(optical or laser) and l1	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:34
L3	7	us-5013663-\$.did. or us-5679795-\$. did. or jp-05297539-\$.did. or wo-2006001460-\$.did. or wo-2006025383-\$.did. or wo-2005116119-\$.did.	EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:39
L4	9	us-5013663-\$.did. or us-5679795-\$. did. or jp-05297539-\$.did. or wo-2006001460-\$.did. or wo-2006025383-\$.did. or wo-2005116119-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:39
L5	4	us-5013663-\$.did. or us-5679795-\$. did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:39
L6	2	us-5013363-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:39
L7	23	jp-11028865-\$.did. or jp-2004188968-\$.did. or ep-1424691-\$.did. or jp-2003025726-\$.did. or us-2003064205-\$.did. or jp-2002059652-\$.did. or jp-2002249674-\$.did. or jp-2002240433-\$.did. or jp-211130-\$. did. or us-2002041948-\$.did. or ep-1239467-\$.did. or ep-1180766-\$. did. or ep-962923-\$.did. or us-2002009669-\$.did. or jp-2000052658-\$.did. or jp-11058973-\$.did. or ep-833314-\$. did. or us-2003078421-\$.did. or jp-10297103-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:58
L8	8	jp-11078106-\$.did. or jp-11348420-\$. did. or jp-10297103-\$.did. or jp-63209995-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/04/19 12:58

\$%^STN;HighlightOn= \*\*\*;HighlightOff=\*\*\* ;

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property data  
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NEWS 17 MAR 03 Updates in PATDPA; addition of IPC 8 data without attributes  
NEWS 18 MAR 08 X.25 communication option no longer available after June 2006  
NEWS 19 MAR 22 EMBASE is now updated on a daily basis  
NEWS 20 APR 03 New IPC 8 fields and IPC thesaurus added to PATDPAFULL  
NEWS 21 APR 03 Bibliographic data updates resume; new IPC 8 fields and IPC  
thesaurus added in PCTFULL  
NEWS 22 APR 04 STN AnaVist \$500 visualization usage credit offered  
NEWS 23 APR 12 LINSPEC, learning database for INSPEC, reloaded and enhanced  
NEWS 24 APR 12 Improved structure highlighting in FQHIT and QHIT display  
in MARPAT  
NEWS 25 APR 12 Derwent World Patents Index to be reloaded and enhanced during  
second quarter; strategies may be affected  
  
NEWS EXPRESS FEBRUARY 15 CURRENT VERSION FOR WINDOWS IS V8.01a,  
CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 19 DECEMBER 2005.  
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FULL ESTIMATED COST	0.21	0.21

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=> s us 2004-0166441/pn  
L1 1 US 2004-0166441/PN  
(US2004166441/PN)

=> s us 2005-0063292/pn  
L2 1 US 2005-0063292/PN  
(US2005063292/PN)

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FULL ESTIMATED COST	4.36	4.57

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DICTIONARY FILE UPDATES: 17 APR 2006 HIGHEST RN 880759-42-2

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\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*

\* the IDE default display format and the ED field has been added, \*  
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\* available and contains the CA role and document type information. \*  
\* " \*  
\*\*\*\*\*

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=> tra rn l1

L3 TRANSFER L1 1- RN : 37 TERMS  
L4 37 L3

=> tra rn l2

REQUESTED FIELD CODE NOT PRESENT IN ANSWER(S) SPECIFIED.

=> d kwic 1-37

L4 ANSWER 1 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697296-77-8\*\*\* REGISTRY

L4 ANSWER 2 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697272-17-6\*\*\* REGISTRY

L4 ANSWER 3 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-76-5\*\*\* REGISTRY

L4 ANSWER 4 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-74-3\*\*\* REGISTRY

L4 ANSWER 5 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-72-1\*\*\* REGISTRY

L4 ANSWER 6 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-70-9\*\*\* REGISTRY

L4 ANSWER 7 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-68-5\*\*\* REGISTRY

L4 ANSWER 8 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-66-3\*\*\* REGISTRY

L4 ANSWER 9 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-64-1\*\*\* REGISTRY

L4 ANSWER 10 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-62-9\*\*\* REGISTRY

L4 ANSWER 11 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-60-7\*\*\* REGISTRY

L4 ANSWER 12 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-58-3\*\*\* REGISTRY

L4 ANSWER 13 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-56-1\*\*\* REGISTRY

L4 ANSWER 14 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-54-9\*\*\* REGISTRY

L4 ANSWER 15 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-51-6\*\*\* REGISTRY

L4 ANSWER 16 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
RN \*\*\*697266-48-1\*\*\* REGISTRY

L4 ANSWER 17 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*697266-46-9\*\*\* REGISTRY  
 L4 ANSWER 18 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*697266-43-6\*\*\* REGISTRY  
 L4 ANSWER 19 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*697266-40-3\*\*\* REGISTRY  
 L4 ANSWER 20 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*697266-36-7\*\*\* REGISTRY  
 L4 ANSWER 21 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*697266-34-5\*\*\* REGISTRY  
 L4 ANSWER 22 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*455329-58-5\*\*\* REGISTRY  
 L4 ANSWER 23 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*401465-30-3\*\*\* REGISTRY  
 L4 ANSWER 24 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*120380-84-9\*\*\* REGISTRY  
 L4 ANSWER 25 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*5441-51-0\*\*\* REGISTRY  
 L4 ANSWER 26 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*873-94-9\*\*\* REGISTRY  
 L4 ANSWER 27 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*637-88-7\*\*\* REGISTRY  
 L4 ANSWER 28 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*591-24-2\*\*\* REGISTRY  
 L4 ANSWER 29 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*589-92-4\*\*\* REGISTRY  
 L4 ANSWER 30 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*565-69-5\*\*\* REGISTRY  
 L4 ANSWER 31 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*141-82-2\*\*\* REGISTRY  
 L4 ANSWER 32 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*108-94-1\*\*\* REGISTRY  
 L4 ANSWER 33 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*107-87-9\*\*\* REGISTRY  
 L4 ANSWER 34 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*96-22-0\*\*\* REGISTRY  
 L4 ANSWER 35 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*89-80-5\*\*\* REGISTRY  
 L4 ANSWER 36 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*78-93-3\*\*\* REGISTRY  
 L4 ANSWER 37 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*75-97-8\*\*\* REGISTRY

=> d all 1

L4 ANSWER 1 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN \*\*\*697296-77-8\*\*\* REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN 4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt with  
 3,12-bis[5-[12-[5-(2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-

pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (2:1) (9CI) (CA INDEX NAME)

MF C74 H64 O32 . 2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

DT.CA Caplus document type: Patent

RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
=====	=====	=====	=====	=====	=====
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	3 in CM 1

CM 1

CRN 697296-76-7  
CMF C74 H64 O32

/ Structure 1 in file .gra /

/ Structure 2 in file .gra /

/ Structure 3 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 4 in file .gra /

Experimental Property Tags (ETAG)

PROPERTY	NOTE
=====	=====
Proton NMR Spectra	(1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 141:14518 CA

TI Novel oxonol compound for optical information-recording medium  
 IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM G11B007-24  
 ICS C09B023-08  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions				
	89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone				
	108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions				
	565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,				
	3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9 455329-58-5 697266-34-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				

=> s Bipyridinium and tetraoxadispiro

12359 BIPYRIDINIUM

1063 TETRAOXADISPIRO

L5 28 BIPYRIDINIUM AND TETRAOXADISPIRO

=> d all 1-28

L5 ANSWER 1 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-47-5 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*

\*\*\* with 3-[5-(2-butyl-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene)-1,3-\*\*\*

\*\*\* pentadienyl]-12-[5-[12-[5-(2-butyl-2-methyl-4,6-dioxo-1,3-dioxan-5-\*\*\*



\*\*\* ylidene)-1,3-pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-\*\*\*  
 \*\*\* tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-1,3-pentadienyl]-1,5,10,14-\*\*\*  
 \*\*\* tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (3:2) (9CI)\*\*\* (CA

\* INDEX NAME)  
 MF C57 H55 O24 . 3/2 C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	2 in CM 1

CM 1  
 CRN 872681-45-3  
 CMF C57 H55 O24

/ Structure 5 in file .gra /

/ Structure 6 in file .gra /

CM 2  
 CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 7 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
 TI Novel oxonol dye compound and optical information recording medium  
 IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
 Tanaka, Osahiko; Tsukase, Masaaki  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO PCT Int. Appl., 159 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM B41M005-26  
 ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ,				

LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA,  
NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,  
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,  
ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF,  
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM,  
KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate  
and, formed thereon, a recording layer contg. at least two types of dye,  
i.e., a dye A and a dye B, characterized in that the above dye A and the  
above dye B satisfy the following requirements (1) and (2): (1) they have  
a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index  
n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a  
laser radiation light for recording, and a refractive index n(B) and an  
exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the  
following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows  
high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel oxonol dye compd. and optical information  
recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions  
1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 2 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
RN 872681-46-4 REGISTRY  
ED Entered STN: 26 Jan 2006  
CN . \*\*\*4,4'-Bipyridinium, 1,1'-bis(4-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
\*\*\* 'with 3-[5-(2-butyl-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene)-1,3-\*\*\*  
\*\*\* pentadienyl]-12-[5-[12-[5-(2-butyl-2-methyl-4,6-dioxo-1,3-dioxan-5-\*\*\*  
\*\*\* ylidene)-1,3-pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-\*\*\*  
\*\*\* tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-1,3-pentadienyl]-1,5,10,14-\*\*\*  
\*\*\* tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (3:2) (9CI)\*\*\* (CA

INDEX NAME)  
MF C57 H55 O24 . 3/2 C34 H26 N2 O2  
SR . CA  
LC STN Files: CA, CAPLUS  
DT.CA CAPLUS document type: Patent  
RL.P Roles from patents: USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	2 in CM 1

CM 1

CRN 872681-45-3  
CMF C57 H55 O24

/ Structure 8 in file .gra /

/ Structure 9 in file .gra /

CM 2

CRN 398129-26-5  
CMF C34 H26 N2 O2

/ Structure 10 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		
	JP 2005-178074		20050617		
	JP 2005-178075		20050617		
	JP 2005-178226		20050617		
AB	The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas: $n(B) / n(A) > 0.7$ $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.				
ST	oxonol dye compd optical recording disk				
IT	Dyes				
	(novel oxonol dye compd. and optical information recording medium)				
IT	Optical disks				
	(write-once read-many; novel oxonol dye compd. and optical information recording medium)				
IT	67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				
IT	181639-60-1P 870102-39-9P 872681-51-1P				
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				
IT	697266-40-3	697266-43-6	697266-51-6	697266-54-9	697266-56-1
	697266-60-7	697266-64-1	697266-66-3	697266-70-9	872681-25-9
	872681-27-1	872681-29-3	872681-30-6	872681-32-8	872681-34-0
	872681-36-2	872681-38-4	872681-40-8	872681-42-0	872681-44-2
	872681-46-4	872681-47-5	872681-49-7		
	RL: TEM (Technical or engineered material use); USES (Uses)				
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 (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS  
 (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 3 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-44-2 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3-[5-(2-ethyl-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene)-1,3-\*\*\*  
 \*\*\* pentadienyl]-12-[5-[12-[5-(2-ethyl-2-methyl-4,6-dioxo-1,3-dioxan-5-\*\*\*  
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 \*\*\* tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (3:2) (9CI)\*\*\* (CA  
 INDEX NAME)

MF C53 H47 O24 . 3/2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

DT.CA CAplus document type: Patent

RL.P Roles from patents: USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3- C6	6-6-6	C12O4	3545.13.1	2 in CM 1

CM 1

CRN 872681-43-1

CMF C53 H47 O24

/ Structure 11 in file .gra /

/ Structure 12 in file .gra /

CM 2

CRN 443128-85-6

CMF C34 H26 N2 O2

/ Structure 13 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)

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## REFERENCE 1

AN 144:117876 CA  
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 Tanaka, Osahiko; Tsukase, Masaaki  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO PCT Int. Appl., 159 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese

IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
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Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

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IT Dyes

(novel oxonol dye compd. and optical information recording medium)

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RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

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872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0

872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2

872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

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 (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS  
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 (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS  
 (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 4 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 872681-42-0 REGISTRY  
 ED Entered STN: 26 Jan 2006  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3-[5-(2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-pentadienyl]-\*\*\*  
 \*\*\* 12-[5-[12-[5-(2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-\*\*\*  
 \*\*\* pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-\*\*\*  
 \*\*\* 3-ylidene)-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-\*\*\*  
 \*\*\* 2,4,11,13-tetrone (3:2) (9CI)\*\*\* (CA INDEX NAME)  
 MF C57 H51 O24 . 3/2 C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: USES (Uses)

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C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	2 in CM 1

CM 1  
 CRN 872681-41-9  
 CMF C57 H51 O24

/ Structure 14 in file .gra /

/ Structure 15 in file .gra /

/ Structure 16 in file .gra /

CM 2  
 CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 17 in file .gra /

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 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
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 ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 41

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PRAI	JP 2004-184884		20040623		
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IT	Dyes				
	(novel oxonol dye compd. and optical information recording medium)				
IT	Optical disks				
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	RL: RCT (Reactant); RACT (Reactant or reagent)				
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- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 5 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-40-8 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
\*\*\* with ethyl 5-[5-[12-[5-[12-[5-[2-(3-ethoxy-3-oxopropyl)-2-methyl-4,6-dioxo-\*\*\*  
\*\*\* 1,3-dioxan-5-ylidene]-3-methyl-1,3-pentadienyl]-2,4,11,13-tetraoxo-\*\*\*  
\*\*\* 1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-3-methyl-1,3-\*\*\*  
\*\*\* pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-\*\*\*  
\*\*\* 3-yl]-3-methyl-2,4-pentadienylidene]-2-methyl-4,6-dioxo-1,3-dioxane-2-\*\*\*  
\*\*\* propanoate (3:2) (9CI)\*\*\* (CA INDEX NAME)

MF C62 H61 O28 . 3/2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

DT.CA Caplus document type: Patent

RL.P Roles from patents: USES (Uses)

#### Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	2 in CM 1

CM 1

CRN 872681-39-5

CMF C62 H61 O28

/ Structure 18 in file .gra /

/ Structure 19 in file .gra /

/ Structure 20 in file .gra /

CM 2

/ Structure 21 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		
	JP 2005-178074		20050617		
	JP 2005-178075		20050617		
	JP 2005-178226		20050617		
AB	The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas: $n(B) / n(A) > 0.7$ $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.				
ST	oxonol dye compd optical recording disk				
IT	Dyes				
	(novel oxonol dye compd. and optical information recording medium)				
IT	Optical disks				
	(write-once read-many; novel oxonol dye compd. and optical information recording medium)				
IT	67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				

IT 181639-60-1P 870102-39-9P 872681-51-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (oxonol dyes in optical disks)  
 IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
 697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
 872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
 872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
 872681-46-4 872681-47-5 872681-49-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 6 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-38-4 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with ethyl 5-[5-[12-[5-[12-[5-[2-(3-ethoxy-3-oxopropyl)-2-methyl-4,6-dioxo-\*\*\*  
 \*\*\* 1,3-dioxan-5-ylidene]-1,3-pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-\*\*\*  
 \*\*\* tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-1,3-pentadienyl]-2,4,11,13-\*\*\*  
 \*\*\* tetraoxo-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-3-yl]-2,4-\*\*\*  
 \*\*\* pentadienylidene]-2-methyl-4,6-dioxo-1,3-dioxane-2-propanoate (3:2)\*\*\*  
 \*\*\* (9CI)\*\*\* (CA INDEX NAME)

MF C59 H55 O28 . 3/2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

DT.CA Cplus document type: Patent

RL.P Roles from patents: USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	2 in CM 1

CM 1

CRN 872681-37-3

CMF C59 H55 O28

/ Structure 23 in file .gra /

/ Structure 24 in file .gra /

CM 2

CRN 443128-85-6

CMF C34 H26 N2 O2

/ Structure 25 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows

high sensitivity in high and low speed recording modes.  
 ST oxonol dye compd optical recording disk  
 IT Dyes  
 (novel oxonol dye compd. and optical information recording medium)  
 IT Optical disks  
 (write-once read-many; novel oxonol dye compd. and optical information recording medium)  
 IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxonol dyes in optical disks)  
 IT 181639-60-1P 870102-39-9P 872681-51-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
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 872681-46-4 872681-47-5 872681-49-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

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- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
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- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 7 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-36-2 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3-[3-methyl-5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3-pentadienyl]-12-[3-methyl-5-[12-[3-methyl-5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3-pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (3:2) (9CI)\*\*\* (CA

INDEX NAME)

MF C58 H57 O24 . 3/2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

DT.CA Caplus document type: Patent

RL.P Roles from patents: USES (Uses)

#### Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1

C402-C402-C6	OCOC3-OCOC3-	6-6-6	C1204	3545.13.1	2 in CM
C6					1

CM 1

CRN 872681-35-1  
CMF C58 H57 O24

/ Structure 26 in file .gra /

/ Structure 27 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 28 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	---	-----	-----
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
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	JP 2005-178226		20050617		

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the

above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

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(novel oxonol dye compd. and optical information recording medium)

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(write-once read-many; novel oxonol dye compd. and optical information recording medium)

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RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

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872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

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(18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS

(19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS

(20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 8 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-34-0 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*

\*\*\* with 3-[5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3-\*\*\*

\*\*\* pentadienyl]-12-[5-[12-[5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-\*\*\*

\*\*\* ylidene)-1,3-pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-\*\*\*

\*\*\* tetraoxadispiro[5.2.5.2]hexadec-3-ylidene]-1,3-pentadienyl]-1,5,10,14-\*\*\*

\*\*\* tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (3:2) (9CI)\*\*\* (CA

INDEX NAME)

MF C55 H51 O24 . 3/2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

DT.CA Caplus document type: Patent

RL.P Roles from patents: USES (Uses)

#### Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
=====	=====	=====	=====	=====	=====

C6	C6	6	C6	46.150.18	4 in CM
					2
C5N	NC5	6	C5N	46.156.30	2 in CM
					2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM
					1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	2 in CM
					1

CM 1

CRN 872681-33-9

CMF C55 H51 O24

/ Structure 29 in file .gra /

/ Structure 30 in file .gra /

CM 2

CRN 443128-85-6

CMF C34 H26 N2 O2

/ Structure 31 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		



JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB• The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 9 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-29-3 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*

\*\*\* with 3,12-bis[5-[2-methyl-4,6-dioxo-2-[2-(1-oxopropoxy)ethyl]-1,3-dioxan-5-\*\*\*

\*\*\* ylidene]-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-\*\*\*

\*\*\* 2,4,11,13-tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C42 H42 O20 . C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

DT.CA CAPLUS document type: Patent

RL.P Roles from patents: USES (Uses)

Ring System Data

Elemental	Elemental	Size of	Ring System	Ring	RID
-----------	-----------	---------	-------------	------	-----

Analysis EA	Sequence ES	the Rings SZ	Formula RF	Identifier RID	Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 872681-28-2

CMF C42 H42 O20

/ Structure 32 in file .gra /

/ Structure 33 in file .gra /

CM 2

CRN 443128-85-6

CMF C34 H26 N2 O2

/ Structure 34 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

#### REFERENCE 1

AN 144:117876 CA  
 TI Novel oxonol dye compound and optical information recording medium  
 IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
 Tanaka, Osahiko; Tsukase, Masaaki  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO PCT Int. Appl., 159 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM B41M005-26  
 ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 41

#### FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRAI JP 2004-184884		20040623		
JP 2004-222939		20040730		
JP 2004-291117		20041004		
JP 2005-21613		20050128		

JP 2005-108861 20050405  
 JP 2005-112226 20050408  
 JP 2005-127921 20050426  
 JP 2005-178074 20050617  
 JP 2005-178075 20050617  
 JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index  $n(A)$  and an exhaustion coeff.  $k(A)$  of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index  $n(B)$  and an exhaustion coeff.  $k(B)$  of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk  
 IT Dyes  
 (novel oxonol dye compd. and optical information recording medium)

IT Optical disks  
 (write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
 697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
 872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
 872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
 872681-46-4 872681-47-5 872681-49-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 10 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 872681-27-1 REGISTRY  
 ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3,12-bis[5-[2-[2-(acetyloxy)ethyl]-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene]-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-\*\*\*  
 \*\*\* 2,4,11,13-tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C40 H38 O20 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: USES (Uses)

## Ring System Data

Elemental 'Analysis EA'	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
=====	=====	=====	=====	=====	=====
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3- C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 872681-26-0

CMF C40 H38 O20

/ Structure 35 in file .gra /

/ Structure 36 in file .gra /

CM 2

CRN 443128-85-6

CMF C34 H26 N2 O2

/ Structure 37 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

## REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

## FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
PI WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRAI JP 2004-184884 20040623

JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index  $n(A)$  and an exhaustion coeff.  $k(A)$  of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index  $n(B)$  and an exhaustion coeff.  $k(B)$  of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

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(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1

697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9

872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0

872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2

872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 11 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872681-25-9 REGISTRY

ED Entered STN: 26 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(4-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*

\*\*\* with 3,12-bis[5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3-\*\*\*

\*\*\* pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*

\*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C38 H38 O16 . C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1  
  
CRN 697266-59-4  
CMF C38 H38 O16

/ Structure 38 in file .gra /

/ Structure 39 in file .gra /

CM 2  
  
CRN 398129-26-5  
CMF C34 H26 N2 O2

/ Structure 40 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM,			

KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L5 ANSWER 12 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 872607-14-2 REGISTRY

ED Entered STN: 25 Jan 2006

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*

\*\*\* with 4,13-dihydroxy-3,12-bis[5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-3,12-\*\*\*  
\*\*\* diene-2,11-dione (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C38 H38 O16 . C34 H26 N2 O2  
SR CA  
LC STN Files: CA, CAPLUS  
DT.CA Caplus document type: Patent  
RL.P Roles from patents: PREP (Preparation); USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.3	1 in CM 1

CM 1  
  
CRN 872607-12-0  
CMF C38 H38 O16

/ Structure 41 in file .gra /

/ Structure 42 in file .gra /

CM 2  
  
CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 43 in file .gra /

3 REFERENCES IN FILE CA (1907 TO DATE)  
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:283294 CA  
TI Optical disk containing cyanine dye in recording layer  
IN Kubo, Hiroshi; Mikoshiba, Hisashi; Shibata, Michihiro  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 185 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

PATENT NO.		KIND	DATE	APPLICATION NO.		DATE
-----		---	-----	-----		-----
PI	WO 2006025383	A1	20060309	WO 2005-JP15761		20050830
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,				



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM

PRAI JP 2004-250842 20040830

AB Provide is an optical disk which has an image recording layer, wherein a visible image can be recorded by using laser beams and by which a visible image having excellent visibility can be recorded in the image recording layer. An optical disk is provided with a board having a groove, and an image recording layer formed on the board for recording a visible image by laser beam irradiation. The optical disk is characterized in that the image recording layer has a reflectance of 7-45% at a wavelength of 660nm before recording, 35% or less at a wavelength of 500nm, a reflectance at a wavelength of 660nm after recording reduces 50% or more compared with that before recording, and the reflectance change of a wavelength where the reflectance increase is max. within a wavelength range of 450-550nm increases 30% or more compared with the reflectance before recording.

ST optical disk cyanine oxonol phthalocyanine dye recording

IT Optical disks

(DVD; Optical disk contg. cyanine dye in recording layer)

IT Unsaturated compounds

RL: DEV (Device component use); USES (Uses)

(cyanines; Optical disk contg. cyanine dye in recording layer)

IT 147-14-8D, Copper phthalocyanine, sulfoamido derivs 83846-69-9  
215370-77-7 222557-72-4 443128-87-8 443128-88-9 872607-14-2  
872681-30-6

RL: DEV (Device component use); USES (Uses)

(Optical disk contg. cyanine dye in recording layer)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Hitachi Ltd; TW 0591632 B 2003 CAPLUS
- (2) Hitachi Ltd; EP 1274084 A2 2003 CAPLUS
- (3) Hitachi Ltd; CN 1393856 A 2003 CAPLUS
- (4) Hitachi Ltd; US 20030001943 A1 2003 CAPLUS
- (5) Hitachi Ltd; JP 200316649 A 2003
- (6) Matsushita Electric Industrial Co Ltd; EP 0751513 A2 1997
- (7) Matsushita Electric Industrial Co Ltd; JP 09-120541 A 1997
- (8) Matsushita Electric Industrial Co Ltd; US 5694387 A1 1997
- (9) Matsushita Electric Industrial Co Ltd; DE 69620061 D 1997
- (10) Matsushita Electric Industrial Co Ltd; DE 69620061 T 1997
- (11) Mitsubishi Chemical Corp; JP 2004213796 A 2004 CAPLUS
- (12) Mitsubishi Chemical Corp; JP 2004213811 A 2004 CAPLUS
- (13) Pioneer Electronic Corp; EP 1148484 A3 2001 CAPLUS
- (14) Pioneer Electronic Corp; US 20010026531 A1 2001 CAPLUS
- (15) Pioneer Electronic Corp; JP 2001283464 A 2001 CAPLUS
- (16) Seiko Epson Corp; JP 2001118289 A 2001 CAPLUS
- (17) Wea Manufacturing Inc; EP 0762407 A2 1997
- (18) Wea Manufacturing Inc; JP 09-106575 A 1997
- (19) Wea Manufacturing Inc; HK 1005417 A 1997
- (20) Wea Manufacturing Inc; AT 201525 T 1997
- (21) Wea Manufacturing Inc; SG 42437 A 1997
- (22) Wea Manufacturing Inc; US 5729533 A1 1997 CAPLUS
- (23) Wea Manufacturing Inc; AU 6558696 A 1997
- (24) Wea Manufacturing Inc; DE 69612929 T 1997
- (25) Wea Manufacturing Inc; AU 704550 B 1997 CAPLUS

REFERENCE 2

AN 144:255685 CA  
TI Bis(1,3-dioxolane-4,6-diones), their manufacture, and manufacture of their oxonol dyes having plural dependent chromophores  
IN Sato, Shingo; Mori, Hideto  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 26 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)  
Section cross-reference(s): 28, 74

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006052354	A2	20060223	JP 2004-236346	20040816
PRAI	JP 2004-236346		20040816		

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

- AB Bis(1,3-dioxolane-4,6-diones), useful for heat-mode optical disks for recording/readout by lasers, are I (Ma1-Ma3 = (substituted) methine; Za2, Za3 = at. group forming acidic nucleus; R1 = substituent; R3 = H, substituent; Y = divalent linkage without forming .pi. conjugated system with linkages to Za2 and Za3; n = 0-3; p = 0-5). Thus, cyclohexane-1,4-dione was condensed with malonic acid to give cyclohexylenebis(1,3-dioxolane-4,6-dione) II, which was treated with PhN:CHCH:CHCH:CHNHPH HCl salt, treated with 2-methyl-2-propyl-1,3-dioxolane-4,6-dione (manufd. from malonic acid and 2-pentanone) in the presence of NEt3, and neutralized with HCl to give III.
- ST bisdioxolanedione oxonol dye manuf laser optical disk; cyclohexylene bisdioxolanedione phenylaminophenyliminopentadiene hydrochloride condensation; methylpropyldioxolanedione cyclohexylene phenylaminophenyliminopentadienyl bisdioxolanedione condensation
- IT Dyes  
(intermediates; manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)
- IT Dyes  
Optical disks  
(manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)
- IT 443128-85-6P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(bright green powder; manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)
- IT 872607-10-8P 876903-29-6P  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(dark green powder; manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)
- IT 872607-14-2P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(deep green powder; manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)
- IT 181639-60-1P 401465-30-3P 871313-86-9P 876903-25-2P 876903-26-3P 876903-28-5P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)
- IT 107-87-9, 2-Pentanone 141-82-2, Malonic acid, reactions 539-88-8, Ethyl levulinate 637-88-7, 1,4-Cyclohexanedione 1497-49-0 1979-58-4 455329-58-5 876903-27-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manuf. of bis(dioxolanedione) oxonol dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

#### REFERENCE 3

- AN 144:109700 CA  
TI Manufacture of oxonol salts and oxonol 4,4'-bipyridinium salt dyes  
IN Motoki, Masushi; Tsukase, Masaaki; Mikoshiba, Hisao  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 37 pp.  
CODEN: JKXXAF

DT Patent  
LA Japanese  
CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)  
Section cross-reference(s): 28, 74

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006001875	A2	20060105	JP 2004-179389	20040617
PRAI	JP 2004-179389	20040617			
GI					

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Oxonol salts I [Za1 = at. group necessary for forming acidic nucleus; Ma1-Ma3 = (substituted) methine; Q = cation; m = 0-3; y = no. necessary for neutralizing elec. charge] are manufd. by treatment of R1pC6H5-pN(:Ma1Ma2:)mMa3NR3C6H5-qR2q (Ma1-Ma3, m = same as I; R1, R2 = substituent; R3 = H, substituent; p, q = 0-5) with cyclic ketones II (Za1 = same as I; L1 = H, leaving group) in the presence of bases from -30.degree. to 10.degree.. Other oxonol salts III [Za1, Za2 = at. group necessary for forming acidic nucleus; Ma4-Ma6 = (substituted) methine; Q = cation; n = 0-3; y = same as I] and IV [Za2-Za4 = at. group necessary for forming acidic nucleus; Ma4-Ma6 = (substituted) methine; Y = bivalent linkage without forming .pi.-conjugated system; Q = cation; n = 0-3; y = same as I] are manufd. by a similar process, resp. The dyes, useful for lase-sensitive heat-mode WORM disks, are manufd. by cation exchange of I, III, or IV with quaternary ammonium salts via A-(N+R6R7R8R9)s (A = oxonol residue from I, III, or IV; R6-R9 = alkyl, aryl; s = 1, 2). Thus, PhN(:CHCH:)3CHNHPH.HCl was treated with 2,4-dioxo-1,5-dioxaspioundecane in the presence of NET3 at -10.degree., and treated with N,N'-bis(3-phenyl-4-hydroxyphenyl)-4,4'-bipyridinium dichloride to give V.

ST oxonol bipyridinium salt dye manuf WORM disk; ylidenaniline cyclic ketone substitution; oxodioxaspioundecane heptadienyl ylidenedianiline substitution ethylamine

IT Cyanine dyes  
Substitution reaction  
(manuf. of oxonol bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT Optical disks  
(write-once read-many; manuf. of oxonol bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT 401465-30-3P 870102-39-9P 870785-06-1P 872607-08-4P 872607-11-9P 872607-13-1P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(manuf. of oxonol bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT 870784-91-1P 872607-09-5P 872607-14-2P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manuf. of oxonol bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT 121-44-8, Triethylamine, reactions 141-82-2, Malonic acid, reactions 637-88-7, 1,4-Cyclohexanedione 1497-49-0 1643-19-2, Tetrabutylammonium bromide 1658-27-1, 1,5-Dioxaspiro[5.5]undecane-2,4-dione 2397-90-2 53891-18-2 181639-60-1 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manuf. of oxonol bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

ED Entered STN: 29 Dec 2005  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 4,13-dihydroxy-3,12-bis[7-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3,5-heptatrienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadeca-\*\*\*  
 \*\*\* 3,12-diene-2,11-dione (1:1) (9CI)\*\*\* (CA INDEX NAME)  
 MF C42 H42 O16 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.3	1 in CM 1

CM 1

CRN 870785-04-9  
 CMF C42 H42 O16

/ Structure 44 in file .gra /

/ Structure 45 in file .gra /

CM 2

CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 46 in file .gra /

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:43266 CA  
 TI Novel oxonol dyes and high-sensitivity optical recording media therewith  
 IN Mikoshiba, Hisao; Motoki, Masushi; Shibata, Michihiro  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 22 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C09B023-00  
 ICS B41M005-26; C07D213-22; C07D319-06; C09B069-04; G11B007-24  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 41  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005336236	A2	20051208	JP 2004-153501	20040524
PRAI	JP 2004-153501		20040524		
GI					

AB The dyes are heptamethineoxonol derivs. I or II [R1-R4, Rc, Rd = H, alkyl, aryl; R5-R11 = H, alkyl, aryl, halo, acyl, etc.; R21, R22 = alkyl, aryl, heterocycle; R23-R30 = H, substituent; R31, R32 = substituent; L = bivalent bridging group; s, t = 0-3 integer; m, n = 1, 2; (s + n).ltoreq.4; and (t + m).ltoreq.4]. Optical recording media (e.g., laser disks, digital versatile disks) contg. the dyes in recording layers exhibit low jitter and high sensitivity.

ST optical disk sensitivity heptamethineoxonol recording dye; jitter minimized digital versatile disk methineoxonol dye

IT Optical disks  
(high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT Cyanine dyes  
(recording dyes; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 870784-91-1P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(dyes; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 870784-93-3 870784-95-5 870784-97-7 870784-99-9 870785-01-6  
870785-03-8 870785-05-0  
RL: TEM (Technical or engineered material use); USES (Uses)  
(dyes; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 62-53-3, Aniline, reactions 107-87-9, 2-Pentanone 141-82-2, Malonic acid, reactions 80466-34-8, 2,4-Hexadienal 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 6811-97-8P 181639-60-1P 870785-06-1P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(intermediates; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

L5 ANSWER 14 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 697296-77-8 REGISTRY

ED Entered STN: 22 Jun 2004

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
\*\*\* with 3,12-bis[5-[12-[5-(2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-pentadienyl]-2,4,11,13-tetraoxo-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadec-3-ylidene)-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-\*\*\*  
\*\*\* 2,4,11,13-tetrone (2:1) (9CI)\*\*\* (CA INDEX NAME)

MF C74 H64 O32 . 2 C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

DT.CA CAplus document type: Patent

RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM
C5N	NC5	6	C5N	46.156.30	2 in CM
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	3 in CM

CRN 697296-76-7  
CMF C74 H64 O32

/ Structure 48 in file .gra /

/ Structure 49 in file .gra /

/ Structure 50 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 51 in file .gra /

#### Experimental Property Tags (ETAG)

PROPERTY	NOTE
Proton NMR Spectra	(1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

#### REFERENCE 1

AN 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1424691	A2	20040602	EP 2003-257521	20031128
EP 1424691	A3	20050209		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004188968	A2	20040708	JP 2003-386222	20031117
CN 1521747	A	20040818	CN 2003-10118808	20031128
US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI JP 2002-348143	20021129			
JP 2003-386222	20031117			

AB An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.

ST optical information recording medium oxonol compd  
IT Optical disks  
Optical recording materials  
. (optical information-recording medium contg. novel oxonol compd.)  
IT Dyes  
Optical recording  
(oxonol compd. for optical information-recording medium)  
IT 697266-40-3P 697266-43-6P 697266-46-9P 697266-48-1P 697266-51-6P  
697266-54-9P 697266-56-1P 697266-58-3P 697266-60-7P 697266-62-9P  
697266-64-1P 697272-17-6P 697296-77-8P  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(oxonol compd. for optical information-recording medium)  
IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
697266-76-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol compd. for optical information-recording medium)  
IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-  
2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84  
-9 455329-58-5 697266-34-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of oxonol compd. for optical information-recording medium)  
IT 401465-30-3P 697266-36-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(prepn. of oxonol compd. for optical information-recording medium)  
L5 ANSWER 15 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
RN 697272-17-6 REGISTRY  
ED Entered STN: 22 Jun 2004  
CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
\*\*\* with 3,12-bis[5-(2-ethyl-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene)-1,3-\*\*\*  
\*\*\* pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
\*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)  
MF C36 H34 O16 . C34 H26 N2 O2  
SR CA  
LC STN Files: CA, CAPLUS, USPATFULL  
DT.CA Caplus document type: Patent  
RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3- C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-73-2  
CMF C36 H34 O16

/ Structure 52 in file .gra /

/ Structure 53 in file .gra /

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 54 in file .gra /

# Experimental Property Tags (ETAG)

PROPERTY | NOTE  
=====+=====

Proton NMR Spectra | (1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

## REFERENCE 1

AN 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1424691	A2	20040602	EP 2003-257521	20031128
EP 1424691	A3	20050209		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004188968	A2	20040708	JP 2003-386222	20031117
CN 1521747	A	20040818	CN 2003-10118808	20031128
US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI JP 2002-348143	20021129			
JP 2003-386222	20031117			

AB An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.  
ST optical information recording medium oxonol compd  
IT Optical disks  
Optical recording materials  
(optical information-recording medium contg. novel oxonol compd.)  
IT Dyes  
Optical recording  
(oxonol compd. for optical information-recording medium)

IT 697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
697266-64-1P	697272-17-6P	697296-77-8P		

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(oxonol compd. for optical information-recording medium)

IT 697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
697266-76-5				



RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol compd. for optical information-recording medium)

IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
 89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
 108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
 565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-  
 2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84  
 -9 455329-58-5 697266-34-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)

IT 401465-30-3P 697266-36-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)

L5 ANSWER 16 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 697266-72-1 REGISTRY

ED Entered STN: 22 Jun 2004

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with diethyl 5,5'-[(2,4,11,13-tetraoxo-1,5,10,14-\*\*\*  
 \*\*\* tetraoxadispiro[5.2.5.2]hexadecane-3,12-diyl)di-2,4-pentadien-5-yl-1-\*\*\*  
 \*\*\* ylidene]bis[2-methyl-3,6-dioxo-1,3-dioxane-2-propanoate] (1:1) (9CI)\*\*\*  
 (CA INDEX NAME)

MF C42 H42 O20 . C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

DT.CA Caplus document type: Patent

RL.P Roles from patents: ANST (Analytical study); PROC (Process); USES  
 (Uses)

#### Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3- C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-71-0  
 CMF C42 H42 O20

/ Structure 55 in file .gra /

/ Structure 56 in file .gra /

CM 2

CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 57 in file .gra /

2 REFERENCES IN FILE CA (1907 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:160338 CA  
 TI Manufacture of optical recording media with excellent reproducibility and light resistance by using recycled similar dyes  
 IN Shibata, Michihiro  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 27 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006024322	A2	20060126	JP 2004-203279	20040709
PRAI	JP 2004-203279		20040709		
AB	The method contains spin coating substrates with coatings contg. plural dyes with difference in the max. absorption wavelength (A) .ltoreq.30 nm, recovering the coatings or dyes scattered, dilg. them with the same media as those for the coatings, analyzing the dilns. by HPLC under conditions where (1) detection wavelength is in the range of A and (2) sample injection vol. is .gtoreq.10 .mu.L, controlling their concns. according to anal. results, and reusing them as the coatings.				
ST	optical recording material reproducibility dye reuse; recycling spin coating dye optical disk; dye recovery HPLC detection wavelength CD				
IT	Polycarbonates, uses RL: DEV (Device component use); USES (Uses) (disk; manuf. of optical disks using recycled similar dyes with good reproducibility and light resistance)				
IT	Dyes HPLC Optical disks Optical recording materials Recycling (manuf. of optical disks using recycled similar dyes with good reproducibility and light resistance)				
IT	211688-34-5, Toughlon MD 1500 RL: DEV (Device component use); USES (Uses) (disk; manuf. of optical disks using recycled similar dyes with good reproducibility and light resistance)				
IT	443128-87-8 443128-88-9 697266-72-1 RL: ANT (Analyte); DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses) (dye, recording layer; manuf. of optical disks using recycled similar dyes with good reproducibility and light resistance)				

REFERENCE 2

AN 141:14518 CA  
 TI Novel oxonol compound for optical information-recording medium  
 IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM G11B007-24  
 ICS C09B023-08  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128

US 2004166441 A1 20040826 US 2003-724353 20031201  
 PRAI JP 2002-348143 20021129  
 JP 2003-386222 20031117  
 AB An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.  
 ST optical information recording medium oxonol compd  
 IT Optical disks  
 Optical recording materials  
 (optical information-recording medium contg. novel oxonol compd.)  
 IT Dyes  
 Optical recording  
 (oxonol compd. for optical information-recording medium)  
 IT 697266-40-3P 697266-43-6P 697266-46-9P 697266-48-1P 697266-51-6P  
 697266-54-9P 697266-56-1P 697266-58-3P 697266-60-7P 697266-62-9P  
 697266-64-1P 697272-17-6P 697296-77-8P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (oxonol compd. for optical information-recording medium)  
 IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
 697266-76-5  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol compd. for optical information-recording medium)  
 IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
 89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
 108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
 565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9  
 455329-58-5 697266-34-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 IT 401465-30-3P 697266-36-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 L5 ANSWER 17 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 697266-70-9 REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3,12-bis[5-[2-(methoxymethyl)-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene]-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-\*\*\*  
 \*\*\* 2,4,11,13-tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)  
 MF C36 H34 O18 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-69-6  
 CMF C36 H34 O18

/ Structure 58 in file .gra /

/ Structure 59 in file .gra /

CM 2

CRN 443128-85-6

CMF C34 H26 N2 O2

/ Structure 60 in file .gra /

2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks  
(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

## REFERENCE 2

AN 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				

Optical recording materials  
(optical information-recording medium contg. novel oxonol compd.)

IT Dyes  
Optical recording  
(oxonol compd. for optical information-recording medium)

IT 697266-40-3P 697266-43-6P 697266-46-9P 697266-48-1P 697266-51-6P  
697266-54-9P 697266-56-1P 697266-58-3P 697266-60-7P 697266-62-9P  
697266-64-1P 697272-17-6P 697296-77-8P  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(oxonol compd. for optical information-recording medium)

IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
697266-76-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol compd. for optical information-recording medium)

IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-  
2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84  
-9 455329-58-5 697266-34-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of oxonol compd. for optical information-recording medium)

IT 401465-30-3P 697266-36-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(prepn. of oxonol compd. for optical information-recording medium)

L5 ANSWER 18 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
RN 697266-64-1 REGISTRY  
ED Entered STN: 22 Jun 2004  
CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
\*\*\* with 3,12-bis[3-methyl-5-(2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-\*\*\*  
\*\*\* 1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
\*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C42 H42 O16 . C34 H26 N2 O2  
SR CA  
LC STN Files: CA, CAPLUS, USPATFULL  
DT.CA Caplus document type: Patent  
RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3- C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-63-0

CMF C42 H42 O16

/ Structure 61 in file .gra /

/ Structure 62 in file .gra /

CM 2

/ Structure 63 in file .gra /

# Experimental Property Tags (ETAG)

PROPERTY | NOTE  
=====+=====

Proton NMR Spectra | (1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

## REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		
	JP 2005-178074		20050617		
	JP 2005-178075		20050617		
	JP 2005-178226		20050617		

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index

n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions

1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1

697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9

872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0

872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2

872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

## REFERENCE 2

AN 141:14518 CA

TI Novel oxonol compound for optical information-recording medium

IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi

PA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 37 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G11B007-24

ICS C09B023-08

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128



US 2004166441 A1 20040826 US 2003-724353 20031201  
 PRAI JP 2002-348143 20021129  
 JP 2003-386222 20031117  
 AB' An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.  
 ST optical information recording medium oxonol compd  
 IT Optical disks  
 Optical recording materials  
 (optical information-recording medium contg. novel oxonol compd.)  
 IT Dyes  
 Optical recording  
 (oxonol compd. for optical information-recording medium)  
 IT 697266-40-3P 697266-43-6P 697266-46-9P 697266-48-1P 697266-51-6P  
 697266-54-9P 697266-56-1P 697266-58-3P 697266-60-7P 697266-62-9P  
 697266-64-1P 697272-17-6P 697296-77-8P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (oxonol compd. for optical information-recording medium)  
 IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
 697266-76-5  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol compd. for optical information-recording medium)  
 IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
 89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
 108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
 565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9  
 455329-58-5 697266-34-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 IT 401465-30-3P 697266-36-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 L5 ANSWER 19 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 697266-62-9 REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3,12-bis[5-(8-methyl-2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-\*\*\*  
 \*\*\* 1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
 \*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)  
 MF C42 H42 O16 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-61-8  
 CMF C42 H42 O16

/ Structure 64 in file .gra /

/ Structure 65 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 66 in file .gra /

# Experimental Property Tags (ETAG)

PROPERTY | NOTE  
=====+=====

Proton NMR Spectra| (1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

## REFERENCE 1

AN 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
PI EP 1424691	A2	20040602	EP 2003-257521	20031128
EP 1424691	A3	20050209		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004188968	A2	20040708	JP 2003-386222	20031117
CN 1521747	A	20040818	CN 2003-10118808	20031128
US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI JP 2002-348143	20021129			
JP 2003-386222	20031117			
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.			
ST	optical information recording medium oxonol compd			
IT	Optical disks			
	Optical recording materials			
	(optical information-recording medium contg. novel oxonol compd.)			
IT	Dyes			
	Optical recording			
	(oxonol compd. for optical information-recording medium)			
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P
	697266-51-6P	697266-54-9P	697266-56-1P	697266-58-3P
	697266-60-7P	697266-62-9P		

697266-64-1P 697272-17-6P 697296-77-8P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (oxonol compd. for optical information-recording medium)  
 IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
 697266-76-5  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxonol compd. for optical information-recording medium)  
 IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
 89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
 108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
 565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2,  
 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9  
 455329-58-5 697266-34-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 IT 401465-30-3P 697266-36-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 L5 ANSWER 20 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 697266-60-7 REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3,12-bis[5-(2-methyl-4,6-dioxo-2-propyl-1,3-dioxan-5-ylidene)-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
 \*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)  
 MF C38 H38 O16 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-59-4  
 CMF C38 H38 O16

/ Structure 67 in file .gra /

/ Structure 68 in file .gra /

CM 2

CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 69 in file .gra /

## Experimental Property Tags (ETAG)

```
PROPERTY      | NOTE
=====+=====
Proton NMR Spectra| (1) CAS
```

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

3 REFERENCES IN FILE CA (1907 TO DATE)

3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

## REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk  
IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks  
(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

## REFERENCE 2

AN 144:8099 CA

TI Novel oxonol compound and process for producing the compound

IN Mikoshiba, Hisashi; Akiba, Masaharu

PA Fuji Photo Film Co., Ltd., Japan

SO PCT Int. Appl., 44 pp.  
CODEN: PIXXD2

DT Patent

LA English

IC ICM C08J005-18  
ICS C08L001-10; C08K003-00; C08K005-103; C08K005-52

CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)  
Section cross-reference(s): 74

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005116119	A1	20051208	WO 2005-JP10097	20050526
<p>W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW</p> <p>RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG</p>				

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention relates to a novel oxonol compd. represented by the formula (I) and a process producing the compd. thereof, which comprises reacting the compd. represented by the formula (II) with the compd. represented by the formula (III) defined herein.: wherein R1 and R2 each independently represent H, a substituted or unsubstituted C1-10 alkyl, or a substituted or unsubstituted C6-10 aryl; R3 , R4 , R6, and R7 each independently represent H or a substituted or unsubstituted C1-10 alkyl; R5 represents H, halo, a substituted or unsubstituted C1-10 alkyl, a substituted or unsubstituted C6-10 aryl, a substituted or unsubstituted C2-10 acylamino,, or a substituted or unsubstituted C1-6 heterocyclic; R8 represents H or a substituted or unsubstituted C2-10 acyl; and R9-R18 each independently represent H or a substituent; provided that R1 and R2 may be bonded to each other to form a ring. The oxonol compd. is useful as an intermediate for an oxonol dye for use in heat mode type information-recording media in which information is recorded with a visible laser light, which are represented by recordable digital versatile disks (DVD-R's).

ST oxonol compd intermediate dye information recording media

IT Cyanine dyes

Optical disks

Optical recording materials

(prodn. of oxonol dye for heat mode type information-recording media)

IT 697266-36-7P 870102-40-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(dye; prodn. of oxonol dye for heat mode type information-recording media)

IT 697266-46-9P 697266-60-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dye; prodn. of oxonol dye for heat mode type information-recording media)

IT 181639-60-1P 401465-30-3P 870102-37-7P 870102-38-8P 870102-39-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; prodn. of oxonol compd. useful as intermediate for oxonol dye)

IT 107-87-9, 2-Pentanone 108-24-7, Acetic anhydride 141-82-2,

Propanedioic acid, reactions 637-88-7, 1,4-Cyclohexanedione 1497-49-0 5441-51-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; prodn. of oxonol compd. useful as intermediate for oxonol dye)

IT 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; prodn. of oxonol dye for heat mode type information-recording media)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 2000052658 A 2000 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (3) Fuji Photo Film Co Ltd; US 6225024 B1 2000 CAPLUS
- (4) Fuji Photo Film Co Ltd; US 6646132 B2 2000 CAPLUS
- (5) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (6) Fuji Photo Film Co Ltd; EP 1083555 A1 2001 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 1083555 B1 2001 CAPLUS
- (8) Fuji Photo Film Co Ltd; JP 2001146074 A 2001 CAPLUS
- (9) Fuji Photo Film Co Ltd; JP 2003039830 A 2003 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (11) Fuji Photo Film Co Ltd; EP 1424691 A3 2004 CAPLUS
- (12) Fuji Photo Film Co Ltd; US 2004166441 A1 2004 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (14) Safer, P; Chemical Communications 2000, V65(12), P1911
- (15) Weber, H; Chemische Berichte 1988, V121(10), P1791 CAPLUS
- (16) Xerox Corporation; US 6461417 B1 2002 CAPLUS

## REFERENCE 3

AN' 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki,  
Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143	20021129			
	JP 2003-386222	20031117			
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials.				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone	78-93-3, Methyl ethyl ketone,	reactions		
	89-80-5, Menthone	96-22-0, Diethyl ketone	107-87-9, 2-Pentanone		
	108-94-1, Cyclohexanone, reactions	141-82-2, Malonic acid, reactions			
	565-69-5, 2-Methyl-3-pentanone	589-92-4, 4-Methylcyclohexanone	591-24-2, 3-Methylcyclohexanone		
	637-88-7, 1,4-Cyclohexanedione	873-94-9, 3,3,5-Trimethylcyclohexanone	5441-51-0, 4-Ethylcyclohexanone		
	120380-84-9	455329-58-5	697266-34-5		
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
L5	ANSWER 21 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN				
RN	697266-58-3 REGISTRY				
ED	Entered STN: 22 Jun 2004				
CN	***4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt***				
	*** with 3,12-bis[5-[2-ethyl-2-(1-methylethyl)-4,6-dioxo-1,3-dioxan-5-ylidene]-***				
	*** 1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-***				
	*** tetrone (1:1) (9CI)*** (CA INDEX NAME)				
MF	C40 H42 O16 . C34 H26 N2 O2				
SR	CA				
LC	STN Files: CA, CAPLUS, USPATFULL				

DT.CA Caplus document type: Patent  
RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-57-2  
CMF C40 H42 O16

/ Structure 70 in file .gra /

/ Structure 71 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 72 in file .gra /

Experimental Property Tags (ETAG)

PROPERTY	NOTE
Proton NMR Spectra	(1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.  
1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other



Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions				
	89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone				
	108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions				
	565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,				
	3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9 455329-58-5 697266-34-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
L5	ANSWER 22 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN				
RN	697266-56-1 REGISTRY				
ED	Entered STN: 22 Jun 2004				
CN	***4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt***				
	*** with 3,12-bis[5-[2-(1,1-dimethylethyl)-2-methyl-4,6-dioxo-1,3-dioxan-5-ylidene]-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-***				
	*** 2,4,11,13-tetrone (1:1) (9CI)*** (CA INDEX NAME)				
MF	C40 H42 O16 . C34 H26 N2 O2				
SR	CA				
LC	STN Files: CA, CAPLUS, USPATFULL				
DT.CA	Caplus document type: Patent				
RL.P	Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)				

# Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM 1

C402-C402-C6 | OCOC3-OCOC3- | 6-6-6 | C1204 | 3545.13.1 | 1 in CM  
C6 | | | | 1

CM' 1

CRN 697266-55-0  
CMF C40 H42 O16

/ Structure 73 in file .gra /

/ Structure 74 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 75 in file .gra /

#### Experimental Property Tags (ETAG)

PROPERTY | NOTE  
=====+=====

Proton NMR Spectra | (1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.  
2 REFERENCES IN FILE CA (1907 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

#### REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

#### FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF,				

CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM,  
KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel oxonol dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions  
1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

REFERENCE 2

AN 141:14518 CA

TI Novel oxonol compound for optical information-recording medium

IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi

PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143	20021129			
	JP 2003-386222	20031117			
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone	78-93-3, Methyl ethyl ketone,	reactions		
	89-80-5, Menthone	96-22-0, Diethyl ketone	107-87-9, 2-Pentanone		
	108-94-1, Cyclohexanone, reactions	141-82-2, Malonic acid, reactions			
	565-69-5, 2-Methyl-3-pentanone	589-92-4, 4-Methylcyclohexanone	591-24-2, 3-Methylcyclohexanone		
	637-88-7, 1,4-Cyclohexanedione	873-94-9, 3,3,5-Trimethylcyclohexanone	5441-51-0, 4-Ethylcyclohexanone		
	120380-84-9	455329-58-5	697266-34-5		
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				

L5 ANSWER 23 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 697266-54-9 REGISTRY

ED Entered STN: 22 Jun 2004

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
\*\*\* with 3,12-bis[5-(2,2-diethyl-4,6-dioxo-1,3-dioxan-5-ylidene)-1,3-\*\*\*  
\*\*\* pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
\*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C38 H38 O16 . C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

DT.CA Caplus document type: Patent

RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

Ring System Data

Elemental Analysis	Elemental Sequence	Size of the Rings	Ring System Formula	Ring Identifier	RID Occurrence
-----------------------	-----------------------	----------------------	------------------------	--------------------	-------------------

EA	ES	SZ	RF	RID	Count
C6	C6	6	C6	46.150.18	4 in CM
C5N	NC5	6	C5N	46.156.30	2 in CM
C4O2	OCOC3	6	C4O2	46.248.1	2 in CM
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM

CM 1

CRN 697266-53-8  
CMF C38 H38 O16

/ Structure 76 in file .gra /

/ Structure 77 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 78 in file .gra /

Experimental Property Tags (ETAG)

PROPERTY	NOTE
Proton NMR Spectra	(1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.  
2 REFERENCES IN FILE CA (1907 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,				

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ,  
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA,  
NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,  
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,  
ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF,  
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM,  
KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM

PRAI JP 2004-184884 20040623  
JP 2004-222939 20040730  
JP 2004-291117 20041004  
JP 2005-21613 20050128  
JP 2005-108861 20050405  
JP 2005-112226 20050408  
JP 2005-127921 20050426  
JP 2005-178074 20050617  
JP 2005-178075 20050617  
JP 2005-178226 20050617

AB The invention relates to an optical recording medium which has a substrate  
and, formed thereon, a recording layer contg. at least two types of dye,  
i.e., a dye A and a dye B, characterized in that the above dye A and the  
above dye B satisfy the following requirements (1) and (2): (1) they have  
a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index  
n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a  
laser radiation light for recording, and a refractive index n(B) and an  
exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the  
following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows  
high sensitivity in high and low speed recording modes.

ST oxonol dye compd optical recording disk

IT Dyes

(novel oxonol dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel oxonol dye compd. and optical information  
recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions  
1497-49-0 401465-30-3 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxonol dyes in optical disks)

IT 181639-60-1P 870102-39-9P 872681-51-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(oxonol dyes in optical disks)

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1

697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9

872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0

872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2

872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

(1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS

(2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS

(3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS

(4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS

(5) Fuji Photo Film Co Ltd; JP 200052658 A 2000

(6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS

(7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS

(8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS

(9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS

(10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS

(11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS

(12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS

(13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS

(14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS

(15) Fuji Photo Film Co Ltd; JP 200259652 A 2002

(16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS

(17) Fuji Photo Film Co Ltd; JP 200325726 A 2003

(18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS

(19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS

## REFERENCE 2

AN 141:14518 CA  
 TI Novel oxonol compound for optical information-recording medium  
 IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM G11B007-24  
 ICS C09B023-08  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143	20021129			
	JP 2003-386222	20031117			
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone	78-93-3, Methyl ethyl ketone, reactions			
	89-80-5, Menthone	96-22-0, Diethyl ketone	107-87-9, 2-Pentanone		
	108-94-1, Cyclohexanone, reactions	141-82-2, Malonic acid, reactions			
	565-69-5, 2-Methyl-3-pentanone	589-92-4, 4-Methylcyclohexanone	591-24-2, 3-Methylcyclohexanone		
	637-88-7, 1,4-Cyclohexanedione	873-94-9, 3,3,5-Trimethylcyclohexanone	5441-51-0, 4-Ethylcyclohexanone	120380-84-9	
	455329-58-5	697266-34-5			
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				

L5 ANSWER 24 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN

RN 697266-51-6 REGISTRY

ED Entered STN: 22 Jun 2004

CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*

\*\*\* with 3,12-bis[5-(8,8,10-trimethyl-2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-\*\*\*

\*\*\* 2,4,11,13-tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)

MF C46 H50 O16 . C34 H26 N2 O2

SR CA

LC STN Files: CA, CAPLUS, USPATFULL  
DT.CA Cplus document type: Patent  
RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
=====	=====	=====	=====	=====	=====
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-50-5  
CMF C46 H50 O16

/ Structure 79 in file .gra /

/ Structure 80 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 81 in file .gra /

Experimental Property Tags (ETAG)

PROPERTY	NOTE
=====	=====
Proton NMR Spectra	(1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.  
2 REFERENCES IN FILE CA (1907 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00



FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		
	JP 2005-178074		20050617		
	JP 2005-178075		20050617		
	JP 2005-178226		20050617		
AB	The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas: $n(B) / n(A) > 0.7$ $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.				
ST	oxonol dye compd optical recording disk				
IT	Dyes				
	(novel oxonol dye compd. and optical information recording medium)				
IT	Optical disks				
	(write-once read-many; novel oxonol dye compd. and optical information recording medium)				
IT	67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5 RL: RCT (Reactant); RACT (Reactant or reagent) (oxonol dyes in optical disks)				
IT	181639-60-1P 870102-39-9P 872681-51-1P RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (oxonol dyes in optical disks)				
IT	697266-40-3	697266-43-6	697266-51-6	697266-54-9	697266-56-1
	697266-60-7	697266-64-1	697266-66-3	697266-70-9	872681-25-9
	872681-27-1	872681-29-3	872681-30-6	872681-32-8	872681-34-0
	872681-36-2	872681-38-4	872681-40-8	872681-42-0	872681-44-2
	872681-46-4	872681-47-5	872681-49-7		
	RL: TEM (Technical or engineered material use); USES (Uses) (oxonol dyes in optical disks)				

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS

(12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS  
 (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS  
 (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS  
 (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002  
 (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS  
 (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003  
 (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS  
 (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS  
 (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

# REFERENCE 2

AN 141:14518 CA  
 TI Novel oxonol compound for optical information-recording medium  
 IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM G11B007-24  
 ICS C09B023-08  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions				
	89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone				
	108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions				
	565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-				
	2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,				
	3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84				
	-9 455329-58-5 697266-34-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				

RN 697266-48-1 REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 '\*\*\* with 3,12-bis[5-[10-methyl-7-(1-methylethyl)-2,4-dioxo-1,5-\*\*\*  
 \*\*\* dioxaspiro[5.5]undec-3-ylidene]-1,3-pentadienyl]-1,5,10,14-\*\*\*  
 \*\*\* tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-tetrone (1:1) (9CI)\*\*\* (CA  
 INDEX NAME)  
 MF C48 H54 O16 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-47-0  
 CMF C48 H54 O16

/ Structure 82 in file .gra /

/ Structure 83 in file .gra /

CM 2

CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 84 in file .gra /

Experimental Property Tags (ETAG)

PROPERTY | NOTE  
 =====+=====

Proton NMR Spectra | (1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 141:14518 CA  
 TI Novel oxonol compound for optical information-recording medium

IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO' Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions				
	89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone				
	108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions				
	565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,				
	3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9 455329-58-5 697266-34-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
IT	401465-30-3P	697266-36-7P			
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(prepn. of oxonol compd. for optical information-recording medium)				
L5	ANSWER 26 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN				
RN	697266-46-9 REGISTRY				
ED	Entered STN: 22 Jun 2004				
CN	***4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt***				
	*** with 3,12-bis[5-(9-ethyl-2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-***				
	*** tetrone (1:1) (9CI)*** (CA INDEX NAME)				
MF	C44 H46 O16 . C34 H26 N2 O2				
SR	CA				
LC	STN Files: CA, CAPLUS, USPATFULL				
DT.CA	CAplus document type: Patent				
RL.P	Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)				

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-45-8  
CMF C44 H46 O16

/ Structure 85 in file .gra /

/ Structure 86 in file .gra /

CM 2

CRN 443128-85-6  
CMF C34 H26 N2 O2

/ Structure 87 in file .gra /

#### Experimental Property Tags (ETAG)

PROPERTY	NOTE
Proton NMR Spectra	(1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

2 REFERENCES IN FILE CA (1907 TO DATE)  
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

#### REFERENCE 1

AN 144:8099 CA  
TI Novel oxonol compound and process for producing the compound  
IN Mikoshiba, Hisashi; Akiba, Masaharu  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 44 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
IC ICM C08J005-18  
ICS C08L001-10; C08K003-00; C08K005-103; C08K005-52  
CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)  
Section cross-reference(s): 74  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005116119	A1	20051208	WO 2005-JP10097	20050526

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

JP 2006008678 A2 20060112 JP 2005-156180 20050527

PRAI JP 2004-158997 20040528  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention relates to a novel oxonol compd. represented by the formula (I) and a process producing the compd. thereof, which comprises reacting the compd. represented by the formula (II) with the compd. represented by the formula (III) defined herein.: wherein R1 and R2 each independently represent H, a substituted or unsubstituted C1-10 alkyl, or a substituted or unsubstituted C6-10 aryl; R3 , R4 , R6, and R7 each independently represent H or a substituted or unsubstituted C1-10 alkyl; R5 represents H, halo, a substituted or unsubstituted C1-10 alkyl, a substituted or unsubstituted C6-10 aryl, a substituted or unsubstituted C2-10 acylamino,, or a substituted or unsubstituted C1-6 heterocyclic; R8 represents H or a substituted or unsubstituted C2-10 acyl; and R9-R18 each independently represent H or a substituent; provided that R1 and R2 may be bonded to each other to form a ring. The oxonol compd. is useful as an intermediate for an oxonol dye for use in heat mode type information-recording media in which information is recorded with a visible laser light, which are represented by recordable digital versatile disks (DVD-R's).

ST oxonol compd intermediate dye information recording media

IT Cyanine dyes

Optical disks

Optical recording materials

(prodn. of oxonol dye for heat mode type information-recording media)

IT 697266-36-7P 870102-40-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(dye; prodn. of oxonol dye for heat mode type information-recording media)

IT 697266-46-9P 697266-60-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dye; prodn. of oxonol dye for heat mode type information-recording media)

IT 181639-60-1P 401465-30-3P 870102-37-7P 870102-38-8P 870102-39-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; prodn. of oxonol compd. useful as intermediate for oxonol dye)

IT 107-87-9, 2-Pentanone 108-24-7, Acetic anhydride 141-82-2, Propanedioic acid, reactions 637-88-7, 1,4-Cyclohexanedione 1497-49-0 5441-51-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; prodn. of oxonol compd. useful as intermediate for oxonol dye)

IT 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(starting material; prodn. of oxonol dye for heat mode type information-recording media)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 2000052658 A 2000 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (3) Fuji Photo Film Co Ltd; US 6225024 B1 2000 CAPLUS
- (4) Fuji Photo Film Co Ltd; US 6646132 B2 2000 CAPLUS

- (5) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (6) Fuji Photo Film Co Ltd; EP 1083555 A1 2001 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 1083555 B1 2001 CAPLUS
- (8) Fuji Photo Film Co Ltd; JP 2001146074 A 2001 CAPLUS
- (9) Fuji Photo Film Co Ltd; JP 2003039830 A 2003 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (11) Fuji Photo Film Co Ltd; EP 1424691 A3 2004 CAPLUS
- (12) Fuji Photo Film Co Ltd; US 2004166441 A1 2004 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (14) Safer, P; Chemical Communications 2000, V65(12), P1911
- (15) Weber, H; Chemische Berichte 1988, V121(10), P1791 CAPLUS
- (16) Xerox Corporation; US 6461417 B1 2002 CAPLUS

REFERENCE 2

AN 141:14518 CA  
 TI Novel oxonol compound for optical information-recording medium  
 IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM G11B007-24  
 ICS C09B023-08  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		

AB An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.

ST optical information recording medium oxonol compd

IT Optical disks

Optical recording materials

(optical information-recording medium contg. novel oxonol compd.)

IT Dyes

Optical recording

(oxonol compd. for optical information-recording medium)

IT 697266-40-3P 697266-43-6P 697266-46-9P 697266-48-1P 697266-51-6P  
 697266-54-9P 697266-56-1P 697266-58-3P 697266-60-7P 697266-62-9P  
 697266-64-1P 697272-17-6P 697296-77-8P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(oxonol compd. for optical information-recording medium)

IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
 697266-76-5

RL: TEM (Technical or engineered material use); USES (Uses)

(oxonol compd. for optical information-recording medium)

IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
 89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
 108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
 565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-2,  
 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84-9  
 455329-58-5 697266-34-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of oxonol compd. for optical information-recording medium)

IT 401465-30-3P 697266-36-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

L5 ANSWER 27 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 697266-43-6 REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3,12-bis[5-(9-methyl-2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-\*\*\*  
 \*\*\* 1,3-pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
 \*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)  
 MF C42 H42 O16 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

## Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-42-5  
 CMF C42 H42 O16

/ Structure 88 in file .gra /

/ Structure 89 in file .gra /

CM 2

CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 90 in file .gra /

## Experimental Property Tags (ETAG)

PROPERTY | NOTE  
 =====+=====

Proton NMR Spectra | (1) CAS

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1



AN 144:117876 CA  
 TI Novel oxonol dye compound and optical information recording medium  
 IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
 Tanaka, Osahiko; Tsukase, Masaaki  
 PA Fujii Photo Film Co., Ltd., Japan  
 SO PCT Int. Appl., 159 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM B41M005-26  
 ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		
	JP 2005-178074		20050617		
	JP 2005-178075		20050617		
	JP 2005-178226		20050617		
AB	The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas: n(B) / n(A) > 0.7 k(B) / k(A) > 10. The dye shows high sensitivity in high and low speed recording modes.				
ST	oxonol dye compd optical recording disk				
IT	Dyes				
	(novel oxonol dye compd. and optical information recording medium)				
IT	Optical disks				
	(write-once read-many; novel oxonol dye compd. and optical information recording medium)				
IT	67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				
IT	181639-60-1P 870102-39-9P 872681-51-1P				
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				
IT	697266-40-3	697266-43-6	697266-51-6	697266-54-9	697266-56-1
	697266-60-7	697266-64-1	697266-66-3	697266-70-9	872681-25-9
	872681-27-1	872681-29-3	872681-30-6	872681-32-8	872681-34-0
	872681-36-2	872681-38-4	872681-40-8	872681-42-0	872681-44-2
	872681-46-4	872681-47-5	872681-49-7		
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol dyes in optical disks)				
RE.CNT	20	THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD			

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

# REFERENCE 2

AN 141:14518 CA  
 TI Novel oxonol compound for optical information-recording medium  
 IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Eur. Pat. Appl., 37 pp.  
 CODEN: EPXXDW  
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 LA English  
 IC ICM G11B007-24  
 ICS C09B023-08  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		
AB	An optical information-recording medium contains a dye having at least two chromophores bonded to each other without any conjugated bond intervening between those chromophores.				
ST	optical information recording medium oxonol compd				
IT	Optical disks				
	Optical recording materials				
	(optical information-recording medium contg. novel oxonol compd.)				
IT	Dyes				
	Optical recording				
	(oxonol compd. for optical information-recording medium)				
IT	697266-40-3P	697266-43-6P	697266-46-9P	697266-48-1P	697266-51-6P
	697266-54-9P	697266-56-1P	697266-58-3P	697266-60-7P	697266-62-9P
	697266-64-1P	697272-17-6P	697296-77-8P		
	RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	697266-66-3	697266-68-5	697266-70-9	697266-72-1	697266-74-3
	697266-76-5				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(oxonol compd. for optical information-recording medium)				
IT	75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions				
	89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone				
	108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions				
	565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-				

2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84  
 -9 455329-58-5 697266-34-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 IT 401465-30-3P 697266-36-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (prepn. of oxonol compd. for optical information-recording medium)  
 L5 ANSWER 28 OF 28 REGISTRY COPYRIGHT 2006 ACS on STN  
 RN 697266-40-3 REGISTRY  
 ED Entered STN: 22 Jun 2004  
 CN \*\*\*4,4'-Bipyridinium, 1,1'-bis(6-hydroxy[1,1'-biphenyl]-3-yl)-, salt\*\*\*  
 \*\*\* with 3,12-bis[5-(2,4-dioxo-1,5-dioxaspiro[5.5]undec-3-ylidene)-1,3-\*\*\*  
 \*\*\* pentadienyl]-1,5,10,14-tetraoxadispiro[5.2.5.2]hexadecane-2,4,11,13-\*\*\*  
 \*\*\* tetrone (1:1) (9CI)\*\*\* (CA INDEX NAME)  
 MF C40 H38 O16 . C34 H26 N2 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL  
 DT.CA Caplus document type: Patent  
 RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

Ring System Data

Elemental Analysis EA	Elemental Sequence ES	Size of the Rings SZ	Ring System Formula RF	Ring Identifier RID	RID Occurrence Count
C6	C6	6	C6	46.150.18	4 in CM 2
C5N	NC5	6	C5N	46.156.30	2 in CM 2
C4O2-C6	OCOC3-C6	6-6	C9O2	833.144.1	2 in CM 1
C4O2-C4O2-C6	OCOC3-OCOC3-C6	6-6-6	C12O4	3545.13.1	1 in CM 1

CM 1

CRN 697266-39-0  
 CMF C40 H38 O16

/ Structure 91 in file .gra /

/ Structure 92 in file .gra /

CM 2

CRN 443128-85-6  
 CMF C34 H26 N2 O2

/ Structure 93 in file .gra /

Experimental Property Tags (ETAG)

PROPERTY | NOTE  
 =====+=====

(1) Akiba, Masaharu; EP 1424691 A2 2004 CAPLUS

See HELP PROPERTIES for information about property data sources in REGISTRY.

2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 144:117876 CA  
TI Novel oxonol dye compound and optical information recording medium  
IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi;  
Tanaka, Osahiko; Tsukase, Masaaki  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 159 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM B41M005-26  
ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-184884		20040623		
	JP 2004-222939		20040730		
	JP 2004-291117		20041004		
	JP 2005-21613		20050128		
	JP 2005-108861		20050405		
	JP 2005-112226		20050408		
	JP 2005-127921		20050426		
	JP 2005-178074		20050617		
	JP 2005-178075		20050617		
	JP 2005-178226		20050617		
AB	The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas: $n(B) / n(A) > 0.7$ $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.				
ST	oxonol dye compd optical recording disk				
IT	Dyes				
	(novel oxonol dye compd. and optical information recording medium)				
IT	Optical disks				
	(write-once read-many; novel oxonol dye compd. and optical information recording medium)				
IT	67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 401465-30-3 455329-58-5				
	RL: RCT (Reactant); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				
IT	181639-60-1P 870102-39-9P 872681-51-1P				
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
	(oxonol dyes in optical disks)				

IT 697266-40-3 697266-43-6 697266-51-6 697266-54-9 697266-56-1  
697266-60-7 697266-64-1 697266-66-3 697266-70-9 872681-25-9  
872681-27-1 872681-29-3 872681-30-6 872681-32-8 872681-34-0  
872681-36-2 872681-38-4 872681-40-8 872681-42-0 872681-44-2  
872681-46-4 872681-47-5 872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

#### REFERENCE 2

AN 141:14518 CA  
TI Novel oxonol compound for optical information-recording medium  
IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki,  
Yoshio; Mikoshiba, Hisashi  
PA Fuji Photo Film Co., Ltd., Japan  
SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DT Patent  
LA English  
IC ICM G11B007-24  
ICS C09B023-08  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143		20021129		
	JP 2003-386222		20031117		

AB An optical information-recording medium contains a dye having at least two  
chromophores bonded to each other without any conjugated bond intervening  
between those chromophores.

ST optical information recording medium oxonol compd

IT Optical disks

Optical recording materials

(optical information-recording medium contg. novel oxonol compd.)

IT Dyes

Optical recording

(oxonol compd. for optical information-recording medium)

IT 697266-40-3P 697266-43-6P 697266-46-9P 697266-48-1P 697266-51-6P  
697266-54-9P 697266-56-1P 697266-58-3P 697266-60-7P 697266-62-9P  
697266-64-1P 697272-17-6P 697296-77-8P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)

(oxonol compd. for optical information-recording medium)

IT 697266-66-3 697266-68-5 697266-70-9 697266-72-1 697266-74-3  
697266-76-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxonol compd. for optical information-recording medium)  
IT 75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions  
89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone  
108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions  
565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone 591-24-  
2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione 873-94-9,  
3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone 120380-84  
-9 455329-58-5 697266-34-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of oxonol compd. for optical information-recording medium)  
IT 401465-30-3P 697266-36-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(prepn. of oxonol compd. for optical information-recording medium)

=> d his

(FILE 'HOME' ENTERED AT 11:58:05 ON 19 APR 2006)  
FILE 'CAPLUS' ENTERED AT 11:58:18 ON 19 APR 2006  
L1 1 S US 2004-0166441/PN  
L2 1 S US 2005-0063292/PN  
FILE 'REGISTRY' ENTERED AT 11:58:58 ON 19 APR 2006  
FILE 'CAPLUS' ENTERED AT 11:59:09 ON 19 APR 2006  
L3 TRA L1 1- RN : 37 TERMS  
FILE 'REGISTRY' ENTERED AT 11:59:10 ON 19 APR 2006  
L4 37 SEA L3  
FILE 'CAPLUS' ENTERED AT 11:59:17 ON 19 APR 2006  
FILE 'REGISTRY' ENTERED AT 11:59:17 ON 19 APR 2006  
L5 28 S BIPYRIDINIUM AND TETRAOXADISPIRO

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COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	171.31	188.53
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-20.59	-20.59

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NEWS	4	JAN 13	IPC 8 searching in IFIPAT, IFIUDB, and IFICDB
NEWS	5	JAN 13	New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to INPADOC
NEWS	6	JAN 17	Pre-1988 INPI data added to MARPAT
NEWS	7	JAN 17	IPC 8 in the WPI family of databases including WPIFV
NEWS	8	JAN 30	Saved answer limit increased
NEWS	9	FEB 21	STN AnaVist, Version 1.1, lets you share your STN AnaVist visualization results
NEWS	10	FEB 22	The IPC thesaurus added to additional patent databases on STN
NEWS	11	FEB 22	Updates in EPFULL; IPC 8 enhancements added
NEWS	12	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS	13	FEB 28	MEDLINE/LMEDLINE reload improves functionality
NEWS	14	FEB 28	TOXCENTER reloaded with enhancements
NEWS	15	FEB 28	REGISTRY/ZREGISTRY enhanced with more experimental spectral property data
NEWS	16	MAR 01	INSPEC reloaded and enhanced
NEWS	17	MAR 03	Updates in PATDPA; addition of IPC 8 data without attributes
NEWS	18	MAR 08	X.25 communication option no longer available after June 2006
NEWS	19	MAR 22	EMBASE is now updated on a daily basis
NEWS	20	APR 03	New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS	21	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
NEWS	22	APR 04	STN AnaVist \$500 visualization usage credit offered
NEWS	23	APR 12	LINSPEC, learning database for INSPEC, reloaded and enhanced
NEWS	24	APR 12	Improved structure highlighting in FQHIT and QHIT display in MARPAT
NEWS	25	APR 12	Derwent World Patents Index to be reloaded and enhanced during second quarter; strategies may be affected
NEWS EXPRESS			FEBRUARY 15 CURRENT VERSION FOR WINDOWS IS V8.01a, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 19 DECEMBER 2005. V8.0 AND V8.01 USERS CAN OBTAIN THE UPGRADE TO V8.01a AT <a href="http://download.cas.org/express/v8.0-Discover/">http://download.cas.org/express/v8.0-Discover/</a>
NEWS HOURS			STN Operating Hours Plus Help Desk Availability
NEWS LOGIN			Welcome Banner and News Items
NEWS IPC8			For general information regarding STN implementation of IPC 8

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\* \* \* \* \* STN Columbus \* \* \* \* \*

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=> file caplus

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FULL ESTIMATED COST	0.21	0.21

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FILE LAST UPDATED: 18 Apr 2006 (20060418/ED)

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=> s dimer? and (oxonol? or oxanol?)  
200739 DIMER?  
977 OXONOL?  
119 OXANOL?  
L1 8 DIMER? AND (OXONOL? OR OXANOL?)

=> d all 1-8

L1 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:814298 CAPLUS  
DN 143:379151  
ED Entered STN: 19 Aug 2005  
TI Effects of native ribonucleases and their modified derivatives on the functional activity of rat peritoneal macrophages  
AU Kalacheva, N. V.; Kurinenko, B. M.  
CS Lab. Inzh. Enzimol., Nauchno-Issled. Inst. Biol., Kazan. Gos. Univ., Kazan, 420008, Russia  
SO Biomeditsinskaya Khimiya (2005), 51(3), 303-310  
CODEN: BKIHA8  
PB NII Biomeditsinskoi Khimii  
DT Journal  
LA Russian  
CC 1-5 (Pharmacology)  
Section cross-reference(s): 7, 14  
AB The influence of native, hydrophobic and \*\*\*dimeric\*\*\* forms of RNAses (RNase A and RNase Bacillus intermedius) on the process of phagocytosis and fusion between lysosomes and phagosomes in rat macrophages has been studied. The effect of native RNAses depends on their concn.: comparatively low concns. (0.5 - 50 .mu.g ml-1) stimulate the phagocytosis and phagosome-lysosome fusion whereas high concns. (above 75 .mu.g ml-1) inhibit these processes. RNAses modified by surfactant \*\*\*oxanol\*\*\* -KD-6 and \*\*\*dimeric\*\*\* forms of RNAses possess only the inhibitory effect, which appears at concn. considerably lower than that of native enzymes. The stimulatory effect of native RNAses and the inhibitory effect of hydrophobic derivs. do not depend on the catalytic activity.  
ST native RNase deriv peritoneal macrophage phagocytosis phagosome fusion



lysosome  
 IT Alcohols, biological studies  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (C8-10, ethoxylated, reaction products with hydrophobic and  
 \*\*\*dimeric\*\*\* forms of RNases; effects of native RNases and their  
 modified derivs. on functional activity of rat peritoneal macrophages)  
 IT Bacillus intermedius  
 Fusion, biological  
 Infection  
 Lysosome  
 Neutrophil  
 Phagocytosis  
 Saccharomyces cerevisiae  
 (effects of native RNases and their modified derivs. on functional  
 activity of rat peritoneal macrophages)  
 IT Peritoneum  
 (macrophage; effects of native RNases and their modified derivs. on  
 functional activity of rat peritoneal macrophages)  
 IT Macrophage  
 (peritoneal; effects of native RNases and their modified derivs. on  
 functional activity of rat peritoneal macrophages)  
 IT Organelle  
 (phagosome; effects of native RNases and their modified derivs. on  
 functional activity of rat peritoneal macrophages)  
 IT 9026-12-4D, RNase Bi, reaction products with \*\*\*oxanol\*\*\* -KD-6  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (Bacillus intermedius; effects of native RNases and their modified  
 derivs. on functional activity of rat peritoneal macrophages)  
 IT 9001-99-4D, RNase A, reaction products with \*\*\*oxanol\*\*\* -KD-6  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (pancreatic; effects of native RNases and their modified derivs. on  
 functional activity of rat peritoneal macrophages)

L1 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1996:621405 CAPLUS  
 DN 125:250381  
 ED Entered STN: 19 Oct 1996  
 TI Preparation of sensitizing cyanine dyes and precursors therefor  
 IN Mee, John D.  
 PA Eastman Kodak Company, USA  
 SO Eur. Pat. Appl., 20 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C09B023-10  
 ICS C07D417-04; C07D277-16; G03C001-12  
 CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic  
 Sensitizers)  
 Section cross-reference(s): 74

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 730008	A2	19960904	EP 1996-200486	19960226
	EP 730008	A3	19970326		
	EP 730008	B1	20000614		
	R: DE, FR, GB				
	US 5679795	A	19971021	US 1995-476541	19950607
PRAI	US 1995-395265	A	19950228		
	US 1995-476541	A	19950607		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES -
EP 730008	ICM	C09B023-10
	ICS	C07D417-04; C07D277-16; G03C001-12
	IPCI	C09B0023-10 [ICM,6]; C07D0417-04 [ICS,6]; C07D0277-16 [ICS,6]; G03C0001-12 [ICS,6]
	IPCR	C07D0277-00 [I,C]; C07D0277-34 [I,A]; C07D0277-36 [I,A]; C09B0023-00 [I,C]; C09B0023-01 [I,A]; C09B0023-10 [I,A]; G03C0001-12 [I,A]; G03C0001-12 [I,C]; G03C0001-83 [I,A]; G03C0001-83 [I,C]
	ECLA	C07D277/34; C07D277/36; C09B023/00R2; C09B023/10; G03C001/12; G03C001/83C

US 5679795 IPCI C07D0277-24 [ICM,6]; C07D0277-26 [ICS,6]; C07D0277-28 [ICS,6]  
 IPCR C07D0277-00 [I,C]; C07D0277-34 [I,A]; C07D0277-36 [I,A]; C09B0023-00 [I,C]; C09B0023-01 [I,A]; C09B0023-10 [I,A]; G03C0001-12 [I,A]; G03C0001-12 [I,C]; G03C0001-83 [I,A]; G03C0001-83 [I,C]  
 NCL 548/182.000; 548/187.000; 548/189.000  
 OS MARPAT 125:250381  
 GI

/ Structure 1 in file .gra /

AB A simple and efficient prepn. of I (R = alkyl, aryl, heterocyclic group; Q, X = CN, carboxy ester, carboxamide, sulfoxyl, sulfonyl, sulfonamide, or QX = 4-7-membered heterocycle) comprises reacting the corresponding ketomethylene compd. or malononitrile with an isothiocyanate in the presence of a base, reacting the resulting product with a haloacetic acid or haloacetic ester, followed by eliminating water or alc. to form the 1,3-thiazolidin-4-one ring. The method includes appending a fragment necessary to complete a merocyanine, \*\*\*oxonol\*\*\*, hemicyanine, benzylidene, cinnamylidene, or holopolar cyanine dye, to the 5-position of the 1,3-thiazolidin-4-one ring. Thus, N-(methoxycarbonylmethyl)rhodanine was condensed with ethoxycarbonylmethyl isothiocyanate followed by Et bromoacetate to give a thiazolidine \*\*\*dimer\*\*\* deriv. This compd. was then treated with 2-(.beta.-acetanilidovinyl)-3-(3-sulfopropyl)benzothiazolium hydroxide and Et3N to provide a cyanine dye.  
 ST sensitizing cyanine thiazolidinone dye prepn  
 IT Dyes, cyanine  
 IT Photographic sensitizers  
 IT (prepn. of thiazolidinone-based sensitizing cyanine dyes)  
 IT Dyes, cyanine  
 IT (intermediates, prepn. of thiazolidinone-based sensitizing cyanine dyes)  
 IT 133567-66-5P 182128-86-5P 182128-88-7P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 IT (intermediate; prepn. of sensitizing cyanine dyes)  
 IT 182128-84-3P 182128-85-4P 182128-87-6P 182128-95-6P 182128-98-9P  
 182129-02-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 IT (intermediate; prepn. of sensitizing cyanine dyes)  
 IT 182128-89-8P 182128-92-3P  
 RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 IT (prepn. of sensitizing cyanine dyes)  
 IT 182128-90-1P 182128-93-4P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 IT (prepn. of sensitizing cyanine dyes)  
 IT 103-72-0, Phenyl isothiocyanate 105-36-2, Ethyl bromoacetate 2033-24-1, 2,2-Dimethyl-1,3-dioxane-4,6-dione 5217-47-0, 1,3-Diethyl-2-thiobarbituric acid 6674-22-2, Dbu 7648-01-3, 3-Ethylrhodanine 24066-82-8, Ethoxycarbonylmethyl isothiocyanate 35080-47-8, 2-(.beta.-Acetanilidovinyl)-3-ethylbenzothiazolium iodide 149789-77-5, N-(Methoxycarbonylmethyl)rhodanine 182129-00-6  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 IT (starting material; prepn. of sensitizing cyanine dyes)

L1 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
 AN 1996:331054 CAPLUS  
 DN 125:109101  
 ED Entered STN: 07 Jun 1996  
 TI Slow fluorescent indicators of membrane potential: a survey of different approaches to probe response analysis  
 AU Plasek, Jaromir; Sigler, Karel  
 CS Institute of Physics, Charles University, Ke Karlovu 5, 121 16, Prague, Czech.  
 SO Journal of Photochemistry and Photobiology, B: Biology (1996), 33(2), 101-124

CODEN: JPPBEG; ISSN: 1011-1344

PB Elsevier

DT Journal; General Review

LA English

CC 9-0 (Biochemical Methods)

AB A review with 206 refs. Basic tenets related to the use of three main classes of potentiometric redistribution fluorescent dyes (carbocyanines, \*\*\*oxonols\*\*\*, and rhodamines) are discussed in detail. They include the structure/function relationship, formation of nonfluorescent (H-type) and fluorescent (J-type) \*\*\*dimers\*\*\* and higher aggregates, probe partitioning between membranes and medium and binding to membranes and intracellular components (with attendant changes in absorption and emission spectra, fluorescence quantum yield and lifetime). The crucial importance of suitable probe-to-cell concn. ratio and selection of optimum monitored fluorescence wavelength is illustrated in schematic diagrams and possible artifacts or puzzling results stemming from faulty exptl. protocol are pointed out. Special attention is paid to procedures used for probe-response calibration (potential clamping by potassium in the presence of valinomycin, use of gramicidin D in combination with N-methylglucamine, activation of Ca-dependent K-channels by A23187, the null-point technique). Among other problems treated are dye toxicity, interaction with mitochondria and other organelles, and possible effects of intracellular pH and the quantity of cytosolic proteins and/or RNA on probe response. Individual techniques using redistribution dyes (fluorescence measurements in cuvettes, flow cytometry and microfluorimetry of individual cells including fluorescence confocal microscopy) are discussed in terms of reliability, limitations and drawbacks, and selection of suitable probes. Up-to-date examples of application of slow dyes illustrate the broad range of problems in which these probes can be used.

ST review fluorescent dye membrane potential

IT Cell membrane  
(slow fluorescent indicators of membrane potential and a survey of different approaches to probe response anal.)

IT Dyes  
(fluorescent, slow fluorescent indicators of membrane potential and a survey of different approaches to probe response anal.)

IT Electric activity  
(potential, slow fluorescent indicators of membrane potential: a survey of different approaches to probe response anal.)

L1 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1994:617483 CAPLUS

DN 121:217483

ED Entered STN: 29 Oct 1994

TI Silver halide color photographic photosensitive material

IN Shono, Akiko

PA Fuji Photo Film Co Ltd, Japan

SO Jpn. Kokai Tokkyo Koho, 69 pp.  
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03C007-38  
ICS G03C001-047; G03C001-83

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05297539	A2	19931112	JP 1992-122881	19920417
	JP 2879491	B2	19990405		
PRAI	JP 1992-122881		19920417		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 05297539	ICM	G03C007-38
	ICS	G03C001-047; G03C001-83
	IPCI	G03C0007-38 [ICM,5]; G03C0001-047 [ICS,5]; G03C0001-83 [ICS,5]

AB. In the title material having on a reflective support photog. constituent layers, .gtoreq.1 of the cyan color-forming Ag halide emulsion layers contains .gtoreq.1 kind(s) of cyan couplers I [Za, Zb = C(-R3), N, 1 of them is C(-R3) and the other is N; R1, 2 = electron-withdrawing group having Hammett's substituent const. .sigma.p >0.2, their sum of .sigma.p >0.65; R3 = H, substituent; X = H, group to be eliminated upon coupling; R1-3 and X may form divalent groups which may bond to a polymer larger than a \*\*\*dimer\*\*\* or a polymer chain to form homopolymer or copolymer] or II (all variable substituents are the same as above) and any 1 of the photog. constituent layers contains .gtoreq.1 of compds. III (W1, W3 = aliph. group, arom. group, heterocyclic group; W2, W4 = OW5, CO2W5, NW5W6, CONW5W6, etc.; W5, W6 = H, aliph. group, arom. group; W5 and W6 or W6 and W7 may bond together to form a 5- or 6-membered ring; L1-5 = methine group; n, m = 0, 1; M+ = H, monovalent cation). The material shows superior sharpness and color reprodn. without causing variations in photog. performance such as color performance, etc.

ST silver halide color photog material; cyan photog coupler \*\*\*oxonol\*\*\* dye; color reprodn sharpness photog paper

IT Photographic paper  
(color, with improved color reprodn and sharpness)

IT Photographic couplers  
(cyan, pyrrolotriazoles as)

IT 143779-39-9 150982-36-8 151019-66-8 154217-48-8 158061-71-3  
RL: TEM (Technical or engineered material use); USES (Uses)  
(cyan photog. coupler, for improved color reprodn and sharpness)

IT 108910-30-1 115345-41-0 118156-04-0 124622-14-6 146692-68-4  
152268-69-4 158061-72-4 158061-73-5 158061-74-6  
RL: USES (Uses)  
(photog. constituent layer contg., for improved color reprodn and sharpness)

IT 143324-20-3P 143324-21-4P 143324-22-5P 150982-33-5P 150982-34-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and reaction of, for cyan photog. coupler)

IT 143324-37-2P 143779-40-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. and use of, as cyan photog. coupler)

L1 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1991:482091 CAPLUS

DN 115:82091

ED Entered STN: 23 Aug 1991

TI Silver halide color photographic materials containing pyrazolotriazole derivatives as magenta coupler and oxonal dyes as irradiation inhibitor

IN Ono, Shigeru; Jinbo, Yoshihiro; Kuwajima, Shigeru; Adachi, Keiichi

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 48 pp.  
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03C007-38

ICS G03C001-83

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02230142	A2	19900912	JP 1988-57302	19880310
	JP 06093096	B4	19941116		
	US 5013636	A	19910507	US 1989-321829	19890310
PRAI	JP 1988-57302	A	19880310		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 02230142	ICM	G03C007-38
	ICS	G03C001-83
	IPCI	G03C0007-38 [ICM,5]; G03C0001-83 [ICS,5]
US 5013636	IPCI	G03C0001-40 [ICM,5]; G03C0007-38 [ICS,5]
	IPCR	C09B0023-00 [I,C]; C09B0023-02 [I,A]; G03C0001-83

[I,A]; G03C0001-83 [I,C]; G03C0007-30 [I,A];  
G03C0007-30 [I,C]  
NCL 430/522.000; 430/558.000; 430/595.000

GI .

/ Structure 3 in file .gra /

AB A silver halide color photog. material contains on a support at least one  
\*\*\*oxonol\*\*\* dye (I; R1, R4 = H, aliph., arom., or heterocyclic group,  
NR7R8, NR7CONR9,R8, NR8COR9, NR8SO2R9; R7, R8 = H, aliph. or arom. group;  
R9 = aliph. or arom. group; or R7R8, R8R9 forming a 5- or 6-membered ring;  
R2, R5 = H, aliph., arom., or heterocyclic group, cyano, SO3H, NR7R8,  
NR8COR9, NR8SO2R9, NR7CONR7R8, CO2R7, CONR7R8, COR9, etc.; R3, R6 = H,  
aliph., arom., or heterocyclic group, OR7, CO2R7, COR9, CONR7R8, NR7R8,  
NR8COR9, NR8SO2R9, NR7CONR7R8, SO2R9, etc.; L-L3 = CH; m = 0, 1, 2,; M+ =  
n valent cation; n = 1, 2, 3) and magenta couplers (II; X = H,  
substituent; Z, Z1 = (substituted) CH, N; Z2 = H, coupling leaving group;  
W = H, acyl, aliph. or arom. sulfonyl group; \*\*\*dimers\*\*\* or polymers  
linked through X, Z2 or Z, Z1 may be formed). The dyes I are stable and  
photog. inactive, and are easily decolorized or removed in photog.  
processing and the magenta couplers II have excellent spectral absorption  
characteristics. A combination I and II provides a silver halide color  
photog. light-sensitive material having excellent sharpness and color  
reprodn. property.

ST color photog film; pyrazolotriazole magenta coupler; \*\*\*oxonol\*\*\* dye  
irradn inhibitor

IT Photographic films  
(color, contg. pyrazolotriazole deriv. magenta couplers and  
\*\*\*oxonol\*\*\* dye irradn. inhibitors, improved sharpness and color  
reprodn. for)

IT 122882-20-6 122882-28-4 129019-80-3 134761-41-4 134769-41-8  
134769-45-2 134769-47-4 134769-48-5 134769-49-6 134769-50-9

RL: USES (Uses)

(irradn. inhibitor, color photog. light-sensitive material contg.)

IT 134769-44-1

RL: USES (Uses)

(irradn. inhibitor, color photog. light-sensitive material contg.  
magenta coupler and)

IT 54636-84-9 85888-24-0 134769-51-0 134769-52-1 134769-53-2

RL: USES (Uses)

(magenta coupler, color photog. light-sensitive material contg.)

L1 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1976:518429 CAPLUS

DN 85:118429

ED Entered STN: 12 May 1984

TI Optical probes of membrane potential

AU Waggoner, Alan

CS Dep. Chem., Amherst Coll., Amherst, MA, USA

SO Journal of Membrane Biology (1976), 27(4), 317-34

CODEN: JMBBBO; ISSN: 0022-2631

DT Journal

LA English

CC 6-13 (General Biochemistry)

AB There are 2 basically different mechanisms for the fluorescence and  
absorption changes of merocyanine, cyanine, and \*\*\*oxonol\*\*\* dyes.  
The permeant dyes (cyanine and \*\*\*oxonol\*\*\* dyes, with delocalized  
charges) work by a potential-dependent accumulation mechanism. These dyes  
show large (.ltoreq.80%) fluorescence and absorption changes with  
suspensions of cells; the changes are complete in seconds. The impermeant  
dyes (merocyanine dyes, with localized charges) and the permeant dyes also  
show optical changes that take place in fractions of msec. The rapid  
optical changes are relatively small (.ltoreq.5 .times. 10-3) but can  
often be easily detected in expts. with single cells. The rapid,  
nonaccumulative, optical changes result from membrane-localized dye  
movements. Cyanine dye-absorption changes occur because of a  
potential-dependent partition of dye between the membrane and the adjacent  
aq. region at the high dye-concn. side of the membrane. \*\*\*Dimers\*\*\*

and larger aggregates are formed in the aq. region during the change. Merocyanine dyes may also work by the same mechanism. DiS-C3-(5) is presently the best dye for measuring membrane potentials of cells, organelles, and vesicles in suspension, but several other cyanines work nearly as well (P. J. Sims, A. S. Wagoner, C.-H. Wang, J. F. Hoffman, 1974). For each system, the ratio of dye to membrane must be varied until the optimum fluorescence change is found. A sep. calibration curve must be obtained for each system. For measuring fluorescence and (or) absorption changes in single cells, merocyanine 540 and diBA-C4-(5) work well but produce some photodynamic damage with high-intensity illumination. A rhodanine merocyanine (WW-375) gives very large absorption changes and does not damage tissue during strong illumination. As the mechanisms of the optical changes are worked out, it should be possible to design and synthesize more sensitive, less toxic dyes that are easier to calibrate and thus may be useful for studying the structure and dynamics of excitable membranes.

ST membrane potential detn dye  
IT Cell membrane  
(elec. potential of, dyes as probes for)  
IT Dyes, cyanine  
(in membrane potential detn.)  
IT Electric potential  
(membrane, dyes as probes for)

L1 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 1976:30788 CAPLUS  
DN 84:30788

ED Entered STN: 12 May 1984

TI Synthesis and reactions of 2-hydroxy-3-cyanothiophenes

AU Gewald, Karl; Jablokoff, H.; Hentschel, M.

CS Sekt. Chem., Tech. Univ. Dresden, Dresden, Ger. Dem. Rep.

SO Journal fuer Praktische Chemie (Leipzig) (1975), 317(5), 861-6  
CODEN: JPCEAO; ISSN: 0021-8383

DT Journal

LA German

CC 27-8 (Heterocyclic Compounds (One Hetero Atom))

OS CASREACT 84:30788

GI For diagram(s), see printed CA Issue.

AB Thiophenes I (R = Ph, R1 = H, R = Me, R1 = H, CO2Et, Ac, R2 = CN, R3 = OH) were prepd. in 55-76% yield by treating I (R2 = CO2Et, R3 = NH2) with NaOEt. I (R = Ph, Me, R1 = H, R2 = CO2Et, R3 = NH2) reacted with R4CHO (R4 = C6H4NMe2-4, CH:CHPh, Ph) to give II. I (R2 = CO2Et, R3 = NH2) formed \*\*\*oxonols\*\*\* with MeC(OEt)3, or were \*\*\*dimerized\*\*\* on oxidn.

ST thiophenecarboxylate rearrangement; arylidenethiophene

IT 57773-38-3P 57773-39-4P 57773-40-7P 57773-42-9P 57773-43-0P

57773-44-1P 57773-45-2P 57773-46-3P 57773-47-4P 57773-48-5P

57773-50-9P 57773-51-0P 57773-52-1P 57773-53-2P 57773-54-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 100-10-7 104-55-2 122-51-0 14368-49-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with aminothiophenecarboxylate)

IT 4815-30-9 4815-36-5 43088-42-2 57773-41-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with ethanolate)

IT 100-52-7, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(with aminothiophenecarboxylates)

L1 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 1968:104476 CAPLUS  
DN 68:104476

ED Entered STN: 12 May 1984

TI Problems in synthetic chemistry using hydrocarbon as raw materials

AU Ishii, Yoshio

CS Nagoya Univ., Nagoya, Japan

SO Sekiyu Gakkaishi (1967), 10(3), 166-70

CODEN: SKGSAE; ISSN: 0582-4664

DT Journal

LA Japanese

CC 23 (Aliphatic Compounds)

AB \*\*\*Dimerization\*\*\* of olefins by RhCl<sub>3</sub>, the Koch reaction, oxidn. of  
hydrocarbons by SO<sub>2</sub>, a synthesis of propylene sulfide and its polymer, and  
cyano \*\*\*oxonolysis\*\*\* of olefins were reviewed with 18 references.  
ST \*\*\*DIMERIZATION\*\*\* OLEFINS REVIEW; REVIEW HYDROCARBONS; CYANO  
OZONOLYSIS OLEFINS REVIEW; OZONOLYSIS CYANO OLEFINS REVIEW; OLEFINS  
\*\*\*DIMERIZATION\*\*\* REVIEW; HYDROCARBONS OXIDN REVIEW; KOCH REACTION  
REVIEW; OXIDN HYDROCARBONS REVIEW; PROPYLENE SULFIDE REVIEW  
IT Hydrocarbons, reactions  
Olefins, reactions  
RL: SPN (Synthetic preparation); PREP (Preparation)

=> s (oxonol? or oxanol?)

977 OXONOL?

119 OXANOL?

L2 1088 (OXONOL? OR OXANOL?)

=> s l2 and ((two or three) (5a) (bonded or linked or chain or connected))

UNMATCHED LEFT PARENTHESIS 'AND ((TWO'

The number of right parentheses in a query must be equal to the  
number of left parentheses.

=> s l2 and ((two or three) (5a) (bonded or linked or chain or connected))

2162701 TWO

38 TWOS

2162731 TWO

(TWO OR TWOS)

950293 THREE

48 THREES

950328 THREE

(THREE OR THREES)

171384 BONDED

1 BONDEDS

171384 BONDED

(BONDED OR BONDEDS)

247991 LINKED

1 LINKEDS

247991 LINKED

(LINKED OR LINKEDS)

664701 CHAIN

304007 CHAINS

843146 CHAIN

(CHAIN OR CHAINS)

239492 CONNECTED

43608 (TWO OR THREE) (5A) (BONDED OR LINKED OR CHAIN OR CONNECTED)

L3 6 L2 AND ((TWO OR THREE) (5A) (BONDED OR LINKED OR CHAIN OR CONNECTE  
D))

=> s l2 and ((two or three) (5a) (bonded or linked or chain or connected))

2162701 TWO

38 TWOS

2162731 TWO

(TWO OR TWOS)

950293 THREE

48 THREES

950328 THREE

(THREE OR THREES)

171384 BONDED

1 BONDEDS

171384 BONDED

(BONDED OR BONDEDS)

247991 LINKED

1 LINKEDS

247991 LINKED

(LINKED OR LINKEDS)

664701 CHAIN

304007 CHAINS

843146 CHAIN

(CHAIN OR CHAINS)

239492 CONNECTED

43608 (TWO OR THREE) (5A) (BONDED OR LINKED OR CHAIN OR CONNECTED)

L4 6 L2 AND ((TWO OR THREE) (5A) (BONDED OR LINKED OR CHAIN OR CONNECTE

D))

=> s l4 not l3  
L5 . 0 L4 NOT L3

=> file reg

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\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

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=> s tetraoxodispiro?  
L6 12 TETRAOXODISPIRO?

=> s tetraoxadispiro?  
L7 1063 TETRAOXADISPIRO?

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```
=> s (l6 or l7) and (oxonol or oxanol)
      4 L6
      573 L7
      911 OXONOL
      90 OXONOLS
      942 OXONOL
          (OXONOL OR OXONOLS)
      110 OXANOL
      11 OXANOLS
      118 OXANOL
          (OXANOL OR OXANOLS)
L8      7 (L6 OR L7) AND (OXONOL OR OXANOL)
```

=> d all 1-7

L8 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2006:211863 CAPLUS  
DN 144:283294  
ED Entered STN: 09 Mar 2006  
TI Optical disk containing cyanine dye in recording layer  
IN Kubo, Hiroshi; Mikoshiba, Hisashi; Shibata, Michihiro  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 185 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006025383	A1	20060309	WO 2005-JP15761	20050830
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
PRAI	JP 2004-250842	A	20040830		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2006025383	IPCI	G11B0007-24 [I,A]

AB Provide is an optical disk which has an image recording layer, wherein a visible image can be recorded by using laser beams and by which a visible image having excellent visibility can be recorded in the image recording layer. An optical disk is provided with a board having a groove, and an

image recording layer formed on the board for recording a visible image by laser beam irradsn. The optical disk is characterized in that the image recording layer has a reflectance of 7-45% at a wavelength of 660nm before recording, 35% or less at a wavelength of 500nm, a reflectance at a wavelength of 660nm after recording reduces 50% or more compared with that before recording, and the reflectance change of a wavelength where the reflectance increase is max. within a wavelength range of 450-550nm increases 30% or more compared with the reflectance before recording.

ST optical disk cyanine \*\*\*oxonol\*\*\* phthalocyanine dye recording  
IT Optical disks  
(DVD; Optical disk contg. cyanine dye in recording layer)  
IT Unsaturated compounds  
RL: DEV (Device component use); USES (Uses)  
(cyanines; Optical disk contg. cyanine dye in recording layer)  
IT 147-14-8D, Copper phthalocyanine, sulfoamido derivs 83846-69-9  
215370-77-7 222557-72-4 443128-87-8 443128-88-9 \*\*\*872607-14-2\*\*\*  
872681-30-6  
RL: DEV (Device component use); USES (Uses)  
(Optical disk contg. cyanine dye in recording layer)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE  
(1) Hitachi Ltd; TW 0591632 B 2003 CAPLUS  
(2) Hitachi Ltd; EP 1274084 A2 2003 CAPLUS  
(3) Hitachi Ltd; CN 1393856 A 2003 CAPLUS  
(4) Hitachi Ltd; US 20030001943 A1 2003 CAPLUS  
(5) Hitachi Ltd; JP 200316649 A 2003  
(6) Matsushita Electric Industrial Co Ltd; EP 0751513 A2 1997  
(7) Matsushita Electric Industrial Co Ltd; JP 09-120541 A 1997  
(8) Matsushita Electric Industrial Co Ltd; US 5694387 A1 1997  
(9) Matsushita Electric Industrial Co Ltd; DE 69620061 D 1997  
(10) Matsushita Electric Industrial Co Ltd; DE 69620061 T 1997  
(11) Mitsubishi Chemical Corp; JP 2004213796 A 2004 CAPLUS  
(12) Mitsubishi Chemical Corp; JP 2004213811 A 2004 CAPLUS  
(13) Pioneer Electronic Corp; EP 1148484 A3 2001 CAPLUS  
(14) Pioneer Electronic Corp; US 20010026531 A1 2001 CAPLUS  
(15) Pioneer Electronic Corp; JP 2001283464 A 2001 CAPLUS  
(16) Seiko Epson Corp; JP 2001118289 A 2001 CAPLUS  
(17) Wea Manufacturing Inc; EP 0762407 A2 1997  
(18) Wea Manufacturing Inc; JP 09-106575 A 1997  
(19) Wea Manufacturing Inc; HK 1005417 A 1997  
(20) Wea Manufacturing Inc; AT 201525 T 1997  
(21) Wea Manufacturing Inc; SG 42437 A 1997  
(22) Wea Manufacturing Inc; US 5729533 A1 1997 CAPLUS  
(23) Wea Manufacturing Inc; AU 6558696 A 1997  
(24) Wea Manufacturing Inc; DE 69612929 T 1997  
(25) Wea Manufacturing Inc; AU 704550 B 1997 CAPLUS

L8 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2006:170077 CAPLUS  
DN 144:255685  
ED Entered STN: 24 Feb 2006  
TI Bis(1,3-dioxolane-4,6-diones), their manufacture, and manufacture of their  
\*\*\*oxonol\*\*\* dyes having plural dependent chromophores  
IN Sato, Shingo; Mori, Hideto  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 26 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic  
Sensitizers)  
Section cross-reference(s): 28, 74

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006052354	A2	20060223	JP 2004-236346	20040816
PRAI	JP 2004-236346		20040816		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2006052354	IPC FTerm	C09B0023-00 [I,A]; C07D0493-10 [I,A]; C09B0069-04 [I,A] 4C071/AA04; 4C071/AA08; 4C071/BB01; 4C071/CC14;

4C071/EE06; 4C071/EE10; 4C071/FF16; 4C071/FF20;  
4C071/GG05; 4C071/HH09; 4C071/JJ01; 4C071/LL05;  
4H056/CA02; 4H056/CA05; 4H056/CB06; 4H056/CC02;  
4H056/CC08; 4H056/CD05; 4H056/CE03; 4H056/DD06;  
4H056/DD07; 4H056/DD16; 4H056/DD18; 4H056/DD29

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Bis(1,3-dioxolane-4,6-diones), useful for heat-mode optical disks for recording/readout by lasers, are I (Ma1-Ma3 = (substituted) methine; Za2, Za3 = at. group forming acidic nucleus; R1 = substituent; R3 = H, substituent; Y = divalent linkage without forming .pi. conjugated system with linkages to Za2 and Za3; n = 0-3; p = 0-5). Thus, cyclohexane-1,4-dione was condensed with malonic acid to give cyclohexylenebis(1,3-dioxolane-4,6-dione) II, which was treated with PhN:CHCH:CHCH:CHNHPH HCl salt, treated with 2-methyl-2-propyl-1,3-dioxolane-4,6-dione (manufd. from malonic acid and 2-pentanone) in the presence of NEt3, and neutralized with HCl to give III.

ST bisdioxolanedione \*\*\*oxonol\*\*\* dye manuf laser optical disk; cyclohexylene bisdioxolanedione phenylaminophenyliminopentadiene hydrochloride condensation; methylpropyldioxolandione cyclohexylene phenylaminophenyliminopentadienyl bisdioxolanedione condensation

IT Dyes  
(intermediates; manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

IT Dyes  
Optical disks  
(manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

IT 443128-85-6P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(bright green powder; manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

IT \*\*\*872607-10-8P\*\*\* \*\*\*876903-29-6P\*\*\*  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(dark green powder; manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

IT \*\*\*872607-14-2P\*\*\*  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(deep green powder; manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

IT 181639-60-1P \*\*\*401465-30-3P\*\*\* 871313-86-9P \*\*\*876903-25-2P\*\*\*  
\*\*\*876903-26-3P\*\*\* \*\*\*876903-28-5P\*\*\*  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

IT 107-87-9, 2-Pentanone 141-82-2, Malonic acid, reactions 539-88-8, Ethyl levulinate 637-88-7, 1,4-Cyclohexanedione 1497-49-0 1979-58-4 455329-58-5 876903-27-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manuf. of bis(dioxolanedione) \*\*\*oxonol\*\*\* dyes having plural dependent chromophores for heat-mode optical disks for recording/readout by lasers)

ED Entered STN: 06 Jan 2006  
 TI Novel \*\*\*oxonol\*\*\* dye compound and optical information recording medium  
 IN Mikoshiba, Hisashi; Motoki, Masuji; Shibata, Michihiro; Nii, Kazumi; Tanaka, Osahiko; Tsukase, Masaaki  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO PCT Int. Appl., 159 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM B41M005-26  
 ICS C09B067-22; C09B069-04; G11B007-24; C09B023-00  
 CC 74-19 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 41

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006001460	A1	20060105	WO 2005-JP11866	20050622
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRAI	JP 2004-184884	A	20040623		
	JP 2004-222939	A	20040730		
	JP 2004-291117	A	20041004		
	JP 2005-21613	A	20050128		
	JP 2005-108861	A	20050405		
	JP 2005-112226	A	20050408		
	JP 2005-127921	A	20050426		
	JP 2005-178074	A	20050617		
	JP 2005-178075	A	20050617		
	JP 2005-178226	A	20050617		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2006001460	ICM	B41M005-26
	ICS	C09B067-22; C09B069-04; G11B007-24; C09B023-00
	IPCI	B41M0005-26 [ICM,7]; C09B0067-22 [ICS,7]; C09B0069-04 [ICS,7]; G11B0007-24 [ICS,7]; C09B0023-00 [ICS,7]

AB The invention relates to an optical recording medium which has a substrate and, formed thereon, a recording layer contg. at least two types of dye, i.e., a dye A and a dye B, characterized in that the above dye A and the above dye B satisfy the following requirements (1) and (2): (1) they have a decompn. starting temp. of 150 to 250.degree.C, (2) a refractive index n(A) and an exhaustion coeff. k(A) of the dye (A) at the wavelength of a laser radiation light for recording, and a refractive index n(B) and an exhaustion coeff. k(B) of the dye (B) at the above wavelength satisfy the following formulas:  $n(B) / n(A) > 0.7$   $k(B) / k(A) > 10$ . The dye shows high sensitivity in high and low speed recording modes.

ST \*\*\*oxonol\*\*\* dye compd optical recording disk

IT Dyes

(novel \*\*\*oxonol\*\*\* dye compd. and optical information recording medium)

IT Optical disks

(write-once read-many; novel \*\*\*oxonol\*\*\* dye compd. and optical information recording medium)

IT 67-64-1, Dimethyl ketone, reactions 141-82-2, Malonic acid, reactions 1497-49-0 \*\*\*401465-30-3\*\*\* 455329-58-5

RL: RCT (Reactant); RACT (Reactant or reagent)

( \*\*\*oxonol\*\*\* dyes in optical disks)

IT 181639-60-1P 870102-39-9P \*\*\*872681-51-1P\*\*\*

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

( \*\*\*oxonol\*\*\* dyes in optical disks)  
IT \*\*\*697266-40-3\*\*\* \*\*\*697266-43-6\*\*\* \*\*\*697266-51-6\*\*\*  
\*\*\*697266-54-9\*\*\* \*\*\*697266-56-1\*\*\* \*\*\*697266-60-7\*\*\*  
\*\*\*697266-64-1\*\*\* 697266-66-3 \*\*\*697266-70-9\*\*\*  
\*\*\*872681-25-9\*\*\* \*\*\*872681-27-1\*\*\* \*\*\*872681-29-3\*\*\*  
872681-30-6 872681-32-8 \*\*\*872681-34-0\*\*\* \*\*\*872681-36-2\*\*\*  
\*\*\*872681-38-4\*\*\* \*\*\*872681-40-8\*\*\* \*\*\*872681-42-0\*\*\*  
\*\*\*872681-44-2\*\*\* \*\*\*872681-46-4\*\*\* \*\*\*872681-47-5\*\*\*  
872681-49-7

RL: TEM (Technical or engineered material use); USES (Uses)

( \*\*\*oxonol\*\*\* dyes in optical disks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Fuji Photo Film Co Ltd; JP 10-297103 A 1998 CAPLUS
- (2) Fuji Photo Film Co Ltd; US 2003078421 A1 1998 CAPLUS
- (3) Fuji Photo Film Co Ltd; EP 833314 A2 1998 CAPLUS
- (4) Fuji Photo Film Co Ltd; JP 11-58973 A 1999 CAPLUS
- (5) Fuji Photo Film Co Ltd; JP 200052658 A 2000
- (6) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS
- (7) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS
- (8) Fuji Photo Film Co Ltd; EP 1180766 B1 2002 CAPLUS
- (9) Fuji Photo Film Co Ltd; EP 1239467 A1 2002 CAPLUS
- (10) Fuji Photo Film Co Ltd; EP 1477484 A1 2002 CAPLUS
- (11) Fuji Photo Film Co Ltd; US 2002041948 A1 2002 CAPLUS
- (12) Fuji Photo Film Co Ltd; JP 2002211130 A 2002 CAPLUS
- (13) Fuji Photo Film Co Ltd; JP 2002240433 A 2002 CAPLUS
- (14) Fuji Photo Film Co Ltd; JP 2002249674 A 2002 CAPLUS
- (15) Fuji Photo Film Co Ltd; JP 200259652 A 2002
- (16) Fuji Photo Film Co Ltd; US 2003064205 A1 2002 CAPLUS
- (17) Fuji Photo Film Co Ltd; JP 200325726 A 2003
- (18) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS
- (19) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS
- (20) Tdk Corp; JP 11-28865 A 1999 CAPLUS

L8 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:11689 CAPLUS

DN 144:109700

ED Entered STN: 06 Jan 2006

TI Manufacture of \*\*\*oxonol\*\*\* salts and \*\*\*oxonol\*\*\*  
4,4'-bipyridinium salt dyes

IN Motoki, Masushi; Tsukase, Masaaki; Mikoshiba, Hisao

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 37 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic  
Sensitizers)

Section cross-reference(s): 28, 74

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2006001875	A2	20060105	JP 2004-179389	20040617
PRAI	JP 2004-179389		20040617		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2006001875	IPCI	C07D0319-08 [I,A]; C07D0213-53 [I,A]; C07D0493-10 [I,A]; C09B0023-00 [I,A]; C09B0069-02 [I,A]
	FTERM	4C022/HA07; 4C055/AA10; 4C055/BA01; 4C055/BB15; 4C055/CA01; 4C055/DA27; 4C071/AA04; 4C071/AA08; 4C071/BB01; 4C071/CC12; 4C071/EE06; 4C071/FF16; 4C071/GG03; 4C071/HH09; 4C071/JJ06; 4C071/KK01; 4C071/LL05; 4H056/CA01; 4H056/CA02; 4H056/CA05; 4H056/CB06; 4H056/CC02; 4H056/CC08; 4H056/CE03; 4H056/DD16; 4H056/FA05

GI

AB \*\*\*Oxonol\*\*\* salts I [Za1 = at. group necessary for forming acidic nucleus; Ma1-Ma3 = (substituted) methine; Q = cation; m = 0-3; y = no. necessary for neutralizing elec. charge] are manufd. by treatment of R1pC6H5-pN(:Ma1Ma2:)mMa3NR3C6H5-qR2q (Ma1-Ma3, m = same as I; R1, R2 = substituent; R3 = H, substituent; p, q = 0-5) with cyclic ketones II (Za1 = same as I; L1 = H, leaving group) in the presence of bases from -30.degree. to 10.degree.. Other \*\*\*oxonol\*\*\* salts III [Za1, Za2 = at. group necessary for forming acidic nucleus; Ma4-Ma6 = (substituted) methine; Q = cation; n = 0-3; y = same as I] and IV [Za2-Za4 = at. group necessary for forming acidic nucleus; Ma4-Ma6 = (substituted) methine; Y = bivalent linkage without forming .pi.-conjugated system; Q = cation; n = 0-3; y = same as I] are manufd. by a similar process, resp. The dyes, usefull for lase-sensitive heat-mode WORM disks, are manufd. by cation exchange of I, III, or IV with quaternary ammonium salts via A-(N+R6R7R8R9)s (A = \*\*\*oxonol\*\*\* residue from I, III, or IV; R6-R9 = alkyl, aryl; s = 1, 2). Thus, PhN(:CHCH:)3CHNHPH.HCl was treated with 2,4-dioxo-1,5-dioxaspirodecane in the presence of NEt3 at -10.degree., and treated with N,N'-bis(3-phenyl-4-hydroxyphenyl)-4,4'-bipyridinium dichloride to give V.

ST \*\*\*oxonol\*\*\* bipyridinium salt dye manuf WORM disk; ylidenaniline cyclic ketone substitution; oxodioxaspirodecane heptadienyl ylidenedianiline substitution ethylamine

IT Cyanine dyes  
Substitution reaction  
(manuf. of \*\*\*oxonol\*\*\* bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT Optical disks  
(write-once read-many; manuf. of \*\*\*oxonol\*\*\* bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT \*\*\*401465-30-3P\*\*\* 870102-39-9P 870785-06-1P 872607-08-4P  
\*\*\*872607-11-9P\*\*\* \*\*\*872607-13-1P\*\*\*  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(manuf. of \*\*\*oxonol\*\*\* bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT 870784-91-1P 872607-09-5P \*\*\*872607-14-2P\*\*\*  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manuf. of \*\*\*oxonol\*\*\* bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

IT 121-44-8, Triethylamine, reactions 141-82-2, Malonic acid, reactions 637-88-7, 1,4-Cyclohexanedione 1497-49-0 1643-19-2, Tetrabutylammonium bromide 1658-27-1, 1,5-Dioxaspiro[5.5]undecane-2,4-dione 2397-90-2 53891-18-2 181639-60-1 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(manuf. of \*\*\*oxonol\*\*\* bipyridinium salt dyes laser-sensitive heat-mode WORM disks by substitution of ylidenanilines with cyclic ketones in the presence of bases, followed by cation exchange)

L8 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:1289960 CAPLUS  
DN 144:8099  
ED Entered STN: 09 Dec 2005  
TI Novel \*\*\*oxonol\*\*\* compound and process for producing the compound  
IN Mikoshiba, Hisashi; Akiba, Masaharu  
PA Fuji Photo Film Co., Ltd., Japan  
SO PCT Int. Appl., 44 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
IC ICM C08J005-18  
ICS C08L001-10; C08K003-00; C08K005-103; C08K005-52  
CC 41-11 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)  
Section cross-reference(s): 74  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005116119	A1	20051208	WO 2005-JP10097	20050526
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	JP 2006008678	A2	20060112	JP 2005-156180	20050527
PRAI	JP 2004-158997	A	20040528		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2005116119	ICM	C08J005-18
	ICS	C08L001-10; C08K003-00; C08K005-103; C08K005-52
	IPCI	C08J0005-18 [ICM,7]; C08L0001-10 [ICS,7]; C08K0003-00 [ICS,7]; C08K0005-103 [ICS,7]; C08K0005-52 [ICS,7]
JP 2006008678	IPCI	C07D0319-06 [I,A]; C07D0319-08 [I,A]; C09B0023-00 [N,A]
	FTERM	4C022/GA13; 4C022/HA04; 4H056/CA01; 4H056/CB02; 4H056/CB03; 4H056/CC01; 4H056/CC04; 4H056/CC08; 4H056/CD01; 4H056/CD05; 4H056/CE03; 4H056/DD16; 4H056/DD29; 4H056/FA06

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention relates to a novel \*\*\*oxonol\*\*\* compd. represented by the formula (I) and a process producing the compd. thereof, which comprises reacting the compd. represented by the formula (II) with the compd. represented by the formula (III) defined herein.: wherein R1 and R2 each independently represent H, a substituted or unsubstituted C1-10 alkyl, or a substituted or unsubstituted C6-10 aryl; R3 , R4 , R6, and R7 each independently represent H or a substituted or unsubstituted C1-10 alkyl; R5 represents H, halo, a substituted or unsubstituted C1-10 alkyl, a substituted or unsubstituted C6-10 aryl, a substituted or unsubstituted C2-10 acylamino,, or a substituted or unsubstituted C1-6 heterocyclic; R8 represents H or a substituted or unsubstituted C2-10 acyl; and R9-R18 each independently represent H or a substituent; provided that R1 and R2 may be bonded to each other to form a ring. The \*\*\*oxonol\*\*\* compd. is useful as an intermediate for an \*\*\*oxonol\*\*\* dye for use in heat mode type information-recording media in which information is recorded with a visible laser light, which are represented by recordable digital versatile disks (DVD-R's).

ST \*\*\*oxonol\*\*\* compd intermediate dye information recording media

IT Cyanine dyes

Optical disks

Optical recording materials

(prodn. of \*\*\*oxonol\*\*\* dye for heat mode type information-recording media)

IT \*\*\*697266-36-7P\*\*\* \*\*\*870102-40-2P\*\*\*

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(dye; prodn. of \*\*\*oxonol\*\*\* dye for heat mode type information-recording media)

IT \*\*\*697266-46-9P\*\*\* \*\*\*697266-60-7P\*\*\*

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dye; prodn. of \*\*\*oxonol\*\*\* dye for heat mode type information-recording media)

IT 181639-60-1P \*\*\*401465-30-3P\*\*\* 870102-37-7P 870102-38-8P

870102-39-9P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT

(Reactant or reagent)  
(intermediate; prodn. of \*\*\*oxonol\*\*\* compd. useful as intermediate  
for \*\*\*oxonol\*\*\* dye)

IT 107-87-9, 2-Pentanone 108-24-7, Acetic anhydride 141-82-2,  
Propanedioic acid, reactions 637-88-7, 1,4-Cyclohexanedione 1497-49-0  
5441-51-0  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(starting material; prodn. of \*\*\*oxonol\*\*\* compd. useful as  
intermediate for \*\*\*oxonol\*\*\* dye)

IT 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(starting material; prodn. of \*\*\*oxonol\*\*\* dye for heat mode type  
information-recording media)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

(1) Fuji Photo Film Co Ltd; JP 2000052658 A 2000 CAPLUS  
(2) Fuji Photo Film Co Ltd; US 2002009669 A1 2000 CAPLUS  
(3) Fuji Photo Film Co Ltd; US 6225024 B1 2000 CAPLUS  
(4) Fuji Photo Film Co Ltd; US 6646132 B2 2000 CAPLUS  
(5) Fuji Photo Film Co Ltd; EP 962923 A1 2000 CAPLUS  
(6) Fuji Photo Film Co Ltd; EP 1083555 A1 2001 CAPLUS  
(7) Fuji Photo Film Co Ltd; EP 1083555 B1 2001 CAPLUS  
(8) Fuji Photo Film Co Ltd; JP 2001146074 A 2001 CAPLUS  
(9) Fuji Photo Film Co Ltd; JP 2003039830 A 2003 CAPLUS  
(10) Fuji Photo Film Co Ltd; EP 1424691 A2 2004 CAPLUS  
(11) Fuji Photo Film Co Ltd; EP 1424691 A3 2004 CAPLUS  
(12) Fuji Photo Film Co Ltd; US 2004166441 A1 2004 CAPLUS  
(13) Fuji Photo Film Co Ltd; JP 2004188968 A 2004 CAPLUS  
(14) Safer, P; Chemical Communications 2000, V65(12), P1911  
(15) Weber, H; Chemische Berichte 1988, V121(10), P1791 CAPLUS  
(16) Xerox Corporation; US 6461417 B1 2002 CAPLUS

L8 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:1285315 CAPLUS  
DN 144:43266  
ED Entered STN: 08 Dec 2005  
TI Novel \*\*\*oxonol\*\*\* dyes and high-sensitivity optical recording media  
therewith  
IN Mikoshiba, Hisao; Motoki, Masushi; Shibata, Michihiro  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C09B023-00  
ICS B41M005-26; C07D213-22; C07D319-06; C09B069-04; G11B007-24  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 41  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005336236	A2	20051208	JP 2004-153501	20040524
PRAI JP 2004-153501		20040524		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2005336236	ICM	C09B023-00
	ICS	B41M005-26; C07D213-22; C07D319-06; C09B069-04; G11B007-24
	IPCI	C09B0023-00 [ICM,7]; B41M0005-26 [ICS,7]; C07D0213-22 [ICS,7]; C07D0319-06 [ICS,7]; C09B0069-04 [ICS,7]; G11B0007-24 [ICS,7]
	FTERM	2H111/EA03; 2H111/EA22; 2H111/EA33; 2H111/EA40; 2H111/FA01; 2H111/FB42; 4C022/GA13; 4C055/AA06; 4C055/AA10; 4C055/BA01; 4C055/CA01; 4C055/DA08; 4C055/DA30; 4C055/DB04; 4C055/DB08; 4C055/EA01; 4C055/GA01; 4H056/CA01; 4H056/CA02; 4H056/CA05; 4H056/CB06; 4H056/CC02; 4H056/CC08; 4H056/CE03; 4H056/DD16; 4H056/DD29; 4H056/FA06; 5D029/JA04

GI



/ Structure 4 in file .gra /

AB The dyes are heptamethineoxonol derivs. I or II [R1-R4, Rc, Rd = H, alkyl, aryl; R5-R11 = H, alkyl, aryl, halo, acyl, etc.; R21, R22 = alkyl, aryl, heterocycle; R23-R30 = H, substituent; R31, R32 = substituent; L = bivalent bridging group; s, t = 0-3 integer; m, n = 1, 2; (s + n).ltoreq.4; and (t + m).ltoreq.4]. Optical recording media (e.g., laser disks, digital versatile disks) contg. the dyes in recording layers exhibit low jitter and high sensitivity.

ST optical disk sensitivity heptamethineoxonol recording dye; jitter minimized digital versatile disk methineoxonol dye

IT Optical disks  
(high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT Cyanine dyes  
(recording dyes; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 870784-91-1P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(dyes; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 870784-93-3 870784-95-5 870784-97-7 870784-99-9 870785-01-6  
870785-03-8 \*\*\*870785-05-0\*\*\*  
RL: TEM (Technical or engineered material use); USES (Uses)  
(dyes; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 62-53-3, Aniline, reactions 107-87-9, 2-Pentanone 141-82-2, Malonic acid, reactions 80466-34-8, 2,4-Hexadienal 455329-58-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

IT 6811-97-8P 181639-60-1P 870785-06-1P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(intermediates; high-sensitivity and low-jitter optical disks contg. prescribed heptamethineoxonol dyes with good lightfastness)

L8 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:446970 CAPLUS

DN 141:14518

ED Entered STN: 03 Jun 2004

TI Novel \*\*\*oxonol\*\*\* compound for optical information-recording medium

IN Akiba, Masaharu; Morishima, Shin-ichi; Shibata, Michihiro; Inagaki, Yoshio; Mikoshiba, Hisashi

PA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW

DT Patent

LA English

IC ICM G11B007-24  
ICS C09B023-08

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 1424691	A2	20040602	EP 2003-257521	20031128
	EP 1424691	A3	20050209		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004188968	A2	20040708	JP 2003-386222	20031117
	CN 1521747	A	20040818	CN 2003-10118808	20031128
	US 2004166441	A1	20040826	US 2003-724353	20031201
PRAI	JP 2002-348143	A	20021129		
	JP 2003-386222	A	20031117		

CLASS

, PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

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EP 1424691      ICM      G11B007-24
                  ICS      C09B023-08
                  IPCI     G11B0007-24 [ICM,7]; C09B0023-08 [ICS,7]
                  IPCR     C09B0023-00 [I,C]; C09B0023-08 [I,A]; G11B0007-24
                        [I,C]; G11B0007-244 [I,A]; G11B0007-247 [I,A]
                  ECLA     C09B023/08B; G11B007/244; G11B007/247
JP 2004188968   IPCI     B41M0005-26 [ICM,7]; C07D0493-10 [ICS,7]; C07D0519-00
                        [ICS,7]; C09B0023-00 [ICS,7]; G11B0007-24 [ICS,7]
                  IPCR     C09B0023-00 [I,C]; C09B0023-08 [I,A]; G11B0007-24
                        [I,C]; G11B0007-244 [I,A]; G11B0007-247 [I,A]
                  FTERM     2H111/EA03; 2H111/EA12; 2H111/EA22; 2H111/EA25;
                        2H111/EA33; 2H111/FB42; 4C071/AA04; 4C071/AA08;
                        4C071/BB01; 4C071/BB05; 4C071/CC14; 4C071/EE06;
                        4C071/FF16; 4C071/GG03; 4C071/HH09; 4C071/JJ06;
                        4C071/KK14; 4C071/LL04; 4C071/LL05; 4C072/MM20;
                        4H056/CA02; 4H056/CA05; 4H056/CB06; 4H056/CC02;
                        4H056/CE01; 4H056/CE03; 4H056/CE06; 4H056/DD07;
                        4H056/DD15; 4H056/DD16; 4H056/DD29; 4H056/FA06;
                        5D029/JA04; 5D029/JB21
CN 1521747      IPCI     G11B0007-24 [ICM,7]; C07D0209-00 [ICS,7]; C07D0277-00
                        [ICS,7]; C09B0023-00 [ICS,7]; B41M0005-26 [ICS,7]
US 2004166441   IPCI     G11B0007-26 [ICM,7]
                  IPCR     C09B0023-00 [I,C]; C09B0023-08 [I,A]; G11B0007-24
                        [I,C]; G11B0007-244 [I,A]; G11B0007-247 [I,A]
                  NCL       430/270.180
                  ECLA     C09B023/08B; G11B007/244; G11B007/247
OS  MARPAT 141:14518
AB  An optical information-recording medium contains a dye having at least two
    chromophores bonded to each other without any conjugated bond intervening
    between those chromophores.
ST  optical information recording medium ***oxonol*** compd
IT  Optical disks
    Optical recording materials
    (optical information-recording medium contg. novel ***oxonol***
    compd.)
IT  Dyes
    Optical recording
    ( ***oxonol*** compd. for optical information-recording medium)
IT  ***697266-40-3P*** ***697266-43-6P*** ***697266-46-9P***
    ***697266-48-1P*** ***697266-51-6P*** ***697266-54-9P***
    ***697266-56-1P*** ***697266-58-3P*** ***697266-60-7P***
    ***697266-62-9P*** ***697266-64-1P*** ***697272-17-6P***
    ***697296-77-8P***
    RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or
    engineered material use); PREP (Preparation); USES (Uses)
    ( ***oxonol*** compd. for optical information-recording medium)
IT  697266-66-3 697266-68-5 ***697266-70-9*** ***697266-72-1***
    ***697266-74-3*** ***697266-76-5***
    RL: TEM (Technical or engineered material use); USES (Uses)
    ( ***oxonol*** compd. for optical information-recording medium)
IT  75-97-8, 3,3-Dimethyl-2-butanone 78-93-3, Methyl ethyl ketone, reactions
    89-80-5, Menthone 96-22-0, Diethyl ketone 107-87-9, 2-Pentanone
    108-94-1, Cyclohexanone, reactions 141-82-2, Malonic acid, reactions
    565-69-5, 2-Methyl-3-pentanone 589-92-4, 4-Methylcyclohexanone
    591-24-2, 3-Methylcyclohexanone 637-88-7, 1,4-Cyclohexanedione
    873-94-9, 3,3,5-Trimethylcyclohexanone 5441-51-0, 4-Ethylcyclohexanone
    120380-84-9 455329-58-5 697266-34-5
    RL: RCT (Reactant); RACT (Reactant or reagent)
    (prepn. of ***oxonol*** compd. for optical information-recording
    medium)
IT  ***401465-30-3P*** ***697266-36-7P***
    RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
    (Reactant or reagent)
    (prepn. of ***oxonol*** compd. for optical information-recording
    medium)

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=> d his

FILE 'CAPLUS' ENTERED AT 12:24:09 ON 19 APR 2006  
L1 8 S DIMER? AND (OXONOL? OR OXANOL?)  
L2 1088 S (OXONOL? OR OXANOL?)  
L3 6 S L2 AND ((TWO OR THREE) (5A) (BONDED OR LINKED OR CHAIN OR CONNE  
L4 6 S L2 AND ((TWO OR THREE) (5A) (BONDED OR LINKED OR CHAIN OR CONNE  
L5 0 S L4 NOT L3

FILE 'REGISTRY' ENTERED AT 12:27:59 ON 19 APR 2006  
L6 12 S TETRAOXODISPIRO?  
L7 1063 S TETRAOXADISPIRO?

FILE 'CAPLUS' ENTERED AT 12:28:29 ON 19 APR 2006  
L8 7 S (L6 OR L7) AND (OXONOL OR OXANOL)

=> log y

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	26.31	96.95
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-5.25	-11.25

STN INTERNATIONAL LOGOFF AT 12:29:38 ON 19 APR 2006